ALCHEMY OF THE GIFT:
THINGS AND MATERIAL TRANSFORMATIONS AT THE COURT OF RUDOLF II

by

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Abstract

This dissertation examines the material potentialities embodied in *Kunstkammer* works of art that were exchanged as gifts with the Holy Roman Emperor Rudolf II (1552-1612) and his contemporaries at the end of the sixteenth and early seventeenth century. Within this context, extraordinary, expertly crafted, and inventive gifts of things—such as paintings on semi-precious stone, *commesso di pietre dure* landscapes, magical natural objects (such as rhinoceros horns and bezoar stones), and books of instruments—were key players in political and social affairs, between courts and individuals separated by distance, religion, and political divides. Examining the highly discursive nature of particular gifts—mentioned in letters, poems, inventories, and dedicated treatises—this thesis brings forward the interrelated interests that made these artefacts matter to the people who collected them. Addressing the shared pursuits in knowledge-producing practices that centered on accumulating and improving knowledge through direct interaction with and observation of the material world—such as collecting, the study of natural history, astronomy, and alchemy—this dissertation focuses on the materiality of gifts, including their productive fusion of natural phenomena, artistic manipulation, and technology. The practice of alchemy, which sought to purify base matter through a conversion that resulted in a more valuable and more precious material, functions as a conceptual thread that brings forward the transformative nature of the gifts under examination, and also serves to highlight the socio-political agency of the gift and its material properties. Together the chapters probe the materiality of diverse gifts; that is, they examine their *matter* and why they *mattered*.

Preface

This dissertation is an original intellectual product of the author, I. Horacek.

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Dedication

To my family.

Chapter One

Introduction

In 1603 Petr Vok of Rožmberk (Rosenberg) (1539-1611), a Czech nobleman and the representative of the Bohemian Estates, sent Emperor Rudolf II a gift of a *handstein*, or handstone, of strange size and shape, which had been obtained from a mine in his territory.[1] Handstones, or strangely shaped mineral ores that contained veins of precious metals, were products obtained as a result of mining and were believed to be precious artefacts from the divine *Kunstkammer*; that is, they were held to be gifts from God.[2] Whenever a miner located an unusual looking handstone he would present it to the master of the mine or its owner. Vok had never seen a mineral ore of similar quality before and knowing that the Emperor was particularly interested in "unique and unusual things from nature" he sent the handstone to Prague where the Imperial physician and mineralogist, Anselmus Boetius de Boodt, would be able to correctly identify the piece. Vok further requested that he be informed in writing of the results of the handstone's examination.[3] While we do not know of the outcome of the gift of the handstone from Vok—how it was

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[1] Václav Bůžek, "Alchymie v každodenním životě vrchních komorních služebníků Rudolfa II.," in *Alchymie a Rudolf II. Hledání tajemství přírody ve střední evropě v. 16. a 17. století*, ed. Ivo Purš and Vladimír Karpenko (Prague: Artefactum, 2011), 648. Ivo Purš, "Anselmus Boëtius de Boodt: lékař, mineralog a alchymista," in Ibid., 539.

[2] Henrike Haug, "Artificial Interventions in the Natural Form of Things: Shared Metallogenetical Concepts of Goldsmiths and Alchemists - Springer," in *Laboratories of Art Alchemy and Art Technology from Antiquity to the 18th Century*, ed. Sven Dupré (Berlin: Springer, 2014), 82; Ivo Purš, "Habsburkové na českém trůně a jejich zájem o alchymii a okultní nauky," in *Alchymie a Rudolf II.*, 115. For a more in-depth discussion about handstones, see Rudolf Distelberger, "Gold und Silber, Edelsteine und Elfenbein," in *Renaissance in Böhmen*, ed. Ferdinand Seibt (Munich: Prestel-Verlag, 1985), 255–87.

[3] Bůžek, "Alchymie v každodenním životě," 648.

received by Rudolf, what was concluded after it had been examined by experts at his court, or if it had been transformed into a fascinating *Kunstkammer* artefact—the correspondence points to the importance of gifts that addressed shared interest in unusual products and materials from nature and in their investigation.

It is likely that after the handstone's arrival at the imperial Court in Prague the piece would have been artistically transformed to resemble other handstones that Rudolf already had in his collection, which he had inherited from his uncle the Archduke Ferdinand II—a prolific collector of such artefacts.[4] For example, an especially extravagant handstone that once belonged to Ferdinand's *Kunstkammer* was created sometime in the third quarter of the sixteenth century by the goldsmith Caspar Ulich (?-1576), one of the few known masters who specialized in the transformation of handstones (Fig. 1).[5] In this work we can see that the original reddish brown ore that contains visible deposits of silver, has been transformed to act as the backdrop for a scene of King David

[4] Handstones were of great interest to Ferdinand II. He obtained most of them in Bohemia and also in the Tyrolean silver mines, Elisabeth Scheicher, "The Collection of Archduke Ferdinand II at Schloss Ambras," in *The Origins of Museums: The Cabinets of Curiosities in Sixteenth- and Seventeenth-Century Europe*, ed. Oliver Impey and Arthur MacGregor (Oxford: Clarendon Press, 1985), 42.

[5] Golsmiths who practiced the art of handstone carving were rare. As Haug explains, Jáchymov (St. Joachimsthal), a mining town in the Ore Mountains (Krušné Hory) that separate Bohemia and Saxony, held a monopoly on processing handstones, with Caspar Ulich as the leading goldsmith of this art form. Rudolf II was aware of his talents and controlled what materials were sent to his workshop, Haug, "Artificial Interventions," 93. In 1577 Rudolf wrote to the Bohemian Chamber the following: "We graciously inform you, that in St. Joachimsthal [lives] a goldsmith called Caspar Ulich; he has about sixteen pieces of 'red silver ore,' which we are entitled to. And because we would like to have them, we graciously command you to instruct in our place our Münzmeister in St. Joachimsthal, to request these pieces of minerals from the goldsmith in the near future, and instruct him to send them to the Bohemian Chamber packaged in such a way, that they will not take damage and that you—when they have arrived—will send them to us immediately," Walter Fischer, "Kaiser Rudolf II. Mineraliensammler und Mäzen der Edelstein-Bearbeitung," *Der Aufschluss* 22 (1971): 2, as cited in Haug, "Artificial Interventions," 93.

and Queen Bathsheba.[6] The biblical scene juxtaposed against the depiction of a handful of miners who appear hard at work in the imaginary mines. We can see some of them working with hammers and pick axes, while another pushes what appears to be a wheelbarrow. King David is represented by the figure standing on a balcony in a castle that is perched on top of the ore, an area that has been reinforced by additional small stones, while his object of admiration—Queen Bathsheba—stands below at a representation of a fountain at the base of the ore. In order to create the idea of a rocky landscape from the original handstone, Ulich had attached pieces of silver, quartz, and other rocks in such a manner that gives the impression that they are naturally occurring in the mineral ore, thus creating the illusion of a mountain with scattered figures of colorfully clad miners who work to mine the deposits. Finally, the handstone and its animated scene are placed upon an elaborate base of gilt silver decorated with hybrid creatures, scrolling designs, and enamel.

The gift of the handstone—a natural artefact obtained during the mining process—and its likely material transformation into a *Kunstkammer* work of art by the artist/goldsmith encapsulates the conceptual framework of this dissertation: the alchemy of the gift and the material transformation of things. Mining was an activity that sought precious materials, and metals most particularly—believed at this time to have grown and

[6] Red silver ore, often red and gold in color, was particularly popular, as may be noted in Rudolf's letter to the Bohemian chamber quoted in n5 above. Ferdinand II also appreciated this type of ore. Writing in 1574 to the master of mines, Ferdinand makes a very specific request: "Send us some nice and decorative *handsteine*, either of particularly high quality silver ore, or of red-gold, or any color, but with beautifully and wonderfully colored growths and rocks, or whatever type of such *handsteine* are mined in these mines. Yet in mines where good silver ore is mined of red-gold color, take diligent care to see that a beautiful *handstein*, even a very heavy one, is sent to us personally by a special messenger, including all that is [naturally] attached to the ore," as cited in Purš, "Habsburkové na českém trůně," 116. See also Joseph Hirn, *Erzherzog Ferdinand II. von Tirol: Geschicht seiner Regierung und seiner Länder* (Inssbruck: Verlag der Wagner 'Schen Universitäts-Buchhandlung, 1885), 438.

evolved over a long period of time from less precious to more noble, deep in the depths of the earth.[7] This process of growth of metals inside the Earth, or the redemption of metals—as it was described in contemporary literature on mining—is not only analogous to Christian soteriology, but also mirrors the activity of the alchemist (and goldsmith) whose end goal was the transmutation or the acceleration of the natural process in order to refine base metals.[8] In this way the handstone in its raw form, and its subsequent embellishment by the goldsmith, reminds us of the artefact's alchemical significance and how basic or lower substances, or materials, may be transformed artificially through creative processes—that imitate natural processes—into nobler artefacts.

The gifting of the handstone, its likely subsequent material transformation, and its alchemical association are analogous to other *Kunstkammer* artefacts addressed in this dissertation. The works examined were all given as gifts between Emperor Rudolf II in Prague, the Saxon Electors in Dresden, the Medici Dukes in Florence, the Habsburgs in Spain, and the astronomer or mathematician Tycho Brahe from Denmark. The question I ask of these gifts—such as a painting on stone; works of *pietre dure*; beautifully executed portrait busts; wondrous natural objects (such as so-called unicorn horns and bezoar stones); and dedicated books of knowledge—is to determine what animated them: what is it that made them potent offerings. The artefacts addressed in the Chapters that follow were highly discursive things—they are cited in inventories, paintings, letters, poems, other *Kunstkammer* artefacts, and contemporary publications. Similar to the handstone, whose material had undergone a conversion during the process of its making at the hands

[7] Theories on metallogenesis in the early modern period were many, for an overview, see Haug, "Artificial Inventions," 80-91.

[8] Purš, "Habsburkové na českém trůně," 115.

of its creator, the artefacts I consider acquired their discursive character due to their transformative nature embedded within their materials; it is these qualities that are at the heart of this dissertation. The individuals who exchanged these gifts were aristocratic collectors or scholars, all shared interests in the material world and practices that sought to accumulate and improve knowledge. I argue that the gifts they exchanged not only participated in this quest, but that any discussion about them must be done in relation to the interests, practices, and pursuits that collided around the process of their making.

Chapters Two, Three, and Four of this dissertation examine gifts that embody the alchemical notion of improvement; that is to say, in these artefacts the processes of nature are mimicked in order to resemble the natural in an improved form. For example, one of the gifts, given by Emperor Rudolf II to the Saxon Elector Christian II, consists of a slab of jasper-agate that was used as a surface for an oil painting of an allegory of Christian II. The Elector is depicted seated in a rocky outcrop in the presence of Minerva, the goddess of victory (Fig. 2). In this work, the focus of Chapter Two, the natural and the painterly are expertly blended together in such a manner that it is difficult to tell them apart. While iconography delivers a clear message to the viewer, it is the skillful use and transformative treatment of the materials that make the work so alluring. In another artefact, a *comesso di pietre dure* landscape, perfectly cut and fitted pieces of multi-colored hard stones have been polished and assembled to resemble an image of a landscape explored in Chapter Three (Fig. 10). While the beautiful agates and jaspers work together to form the image, their lustrous sheen, textures, and patterns that occur naturally in the stone vie for attention and threaten to destabilize the image they create. This destabilization draws attention to the material properties of the stones that make up

the landscape scene—itself a symbolic source of the very stones that construct it. In an oil painting on parchment—a leaf that belongs to a greater compendium of natural history—two horns of a rhinoceros are standing side by side. One—a gift from the Empress Maria to her son Rudolf II—is extravagantly decorated with jewels and gold filigree, while the other stands bare in its natural state (Fig. 18). The transformation of the decorated horn (that still exists today) into a painted image juxtaposed against a similar horn in its natural state calls attention to surface qualities—the natural striations and sheen and the bejewelled surface—asking the viewer to glance back and forth between nature and artifice. This interplay between the treatments of the painted surface of the artefacts depicted, the focus of Chapter Four, points to the otherworldly or magical properties contained within the material of the horns. While the potency of the gifts addressed in the first three Chapters is located within their materials, the gift focused upon in Chapter Five—Tycho Brahe's *Astronomiae instauratae mechanica*—articulates another kind of exchange dynamic. The *Mechanica* was a book printed in many copies and distributed among Brahe's network, and eventually given to Emperor Rudolf II. Unlike the other works studied in this dissertation its source of agency resides in a complicated relationship to the medium and technology of print and its possibilities for replication.

The art and science of alchemy, introduced by the handstone, also provides an analogy for reassessing gifts of artefacts within the historical context addressed in this dissertation. Together, the Chapters propose that the alchemical process of internal metamorphosis that enacts change upon the material world through external processes is imbued in the impetus of their work as gifts. What animates these luxurious things and makes them particularly potent gifts, I argue, is their transformative nature, which is tied

to the technologies and processes that brought them into being. In this way, considering a variety of *Kunstkammer* artefacts that at one point acted as gifts between aristocratic collectors, and which embodied their shared interests in materials and their transformation, this dissertation proposes that the luxurious gifts possess the power to reconfigure political and social relations alchemically over time and across space. Alchemy, a concept that was central to early modern thinking, provides a thread that connects the various gifts under consideration and promotes an understanding of the transformative potential of gifts, perceived and actual. My focus, however, is not upon the social outcome of particular gift exchanges, but upon the complex dynamic of gifts of artefacts and the social interactions they activate.

In the following pages, I address the historical context in relation to the intellectual pursuits that shaped the early modern engagement with nature and the material world. The particular significance of alchemy and its function as an active practice that promoted the notion of purification or improvement of not only materials but also the human condition is explained. A discussion of Rudolf II as a key early modern collector and patron of the arts and sciences follows. I then address significant literature on materiality and the gift, closing with an explanation of the breakdown of the dissertation Chapters.

Historical context

The giving of extravagant artefacts constituted a common practice in the early modern period, a time during which the collecting of the material world in *Kunstkammern* by the upper echelons of society was not only fashionable but was also

associated with the pursuit of knowledge and power. Things—as objects in and of themselves, as gifts, and in their circulation—played an important role during this period that was characterized by a crisis of authority and significant cultural, economic, and societal transformations spurred on by various interrelated events and processes. These include, but are not limited to, the material exploration and exploitation of New Worlds, discoveries in the arts and sciences, the Reformation and Counter Reformation, as well as the increasing threat from the expanding Ottoman Empire.

In general, within the Holy Roman Empire, and central Europe especially, the latter half of the sixteenth century and the first decades of the seventeenth, was a period fraught by conflict, characterized by intense political and religious struggles, weakening imperial authority and dynastic rivalries. A full account of the complexities of this period is beyond the scope of this introduction.[9] Generally speaking religious and political conflicts, related to the Reformation and Counter Reformation, manifest at all levels of society, led to uncertainty and anxiety that were expressed through astrological prophesies about an imminent defeat by the Turks and the coming of the end of the world. Historians have described central Europe as a pressure cooker, in which Calvinist militancy, Lutheran envenoming of internal debates and disputes, and the hardening of the Catholic position caused a polarization of the German princes into armed confessional alliances.[10] The problems that ensued resulted in a series of violent conflicts by the second decade of the seventeenth century, known as the Thirty Years War (1618-1648).

[9] See R. J. W. Evans for a succinct account of the situation, "The Habsburgs, Bohemia, and the Empire," in *Rudolf II and His World: A Study of Intellectual History, 1576-1612* (Clarendon Press: Oxford University Press, 1973), 5–42. See also Ibid., *The Making of the Habsburg Monarchy, 1550-1700: An Interpretation* (Oxford; New York: Clarendon Press ; Oxford University Press, 1979).

[10] Peter H. Wilson, "The Causes of the Thirty Years War 1618-48," *English Historical Review* CXXIII, no. 502 (2008): 558. Wilson provides a critical review of literature on the topic, 555-86.

As Pamela Smith describes, at the intellectual level, these political and religious conflicts translated into debates over the foundations and the very legitimacy of knowledge and knowledge-making, a conflict between practical and intellectual solutions, between acceptance of nature or dominion over it.[11]

Emperor Rudolf II was one of the key players within this volatile context. He and many of his noble contemporaries subscribed partly to a magical worldview, which held that nature and society were connected by hidden sources of knowledge. Earlier on I described the process of redemption of metals, a progression during which metals grow into more noble and precious ones. This was a process that the alchemist sought to imitate by close study and understanding of the metal's constituents, which involved scrutiny of nature and its secrets. More specifically it involved extensive study of natural history, Hermetic texts, the Kabbala, astrology, the art of alchemy, and the establishment of collections that would in turn facilitate the study of all of these fields. It was believed that by performing the above people would gain access to secret knowledge, which would enable a path to enlightenment and ultimately to a better world, void of chaos, violence, and religious conflicts.[12]

At the intellectual level this crisis of authority translated into debates over the foundations and the very legitimacy of knowledge-making, resulting in the development of a so-called "new philosophy," characterized by the *vita activa*, or the active life.[13] The

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[11] Pamela H. Smith, *The Business of Alchemy: Science and Culture in the Holy Roman Empire* (Princeton, N.J.: Princeton University Press, 1994), 4.

[12] Ibid., 1-4. See also Ivo Purš, "The Intellectual World of Rudolf II and the Kabbalah," in *Path of Life: Rabbi Judah Loew Ben Bezalel, ca. 1525-1609*, ed. Alexander Putík and Peter Demetz (Prague: Academia, 2009), 199–219.

[13] Smith, *Business of Alchemy*, 4.

vita activa refers to the study of nature conducted through active practice, observation of natural objects, and active manipulation of visible, tangible, and material things—activities and interests that flourished in alchemical laboratories, theaters of nature, and collections at courtly residences throughout the sixteenth century. At the material level, this new philosophy was manifested through collecting, observation of things and materials, making of new things that had never been made before, and through visual demonstrations of ideas with physical things, instead of the traditional and logical demonstration by means of words and discursive practices.[14] New engagements with things as a result of direct and active examination of nature—through dissection, comparison, description, and manipulation of nature—established a new authority and underscored the understanding of experience derived from the material world.

Courtly *Kunstkammer* gifts that were given amongst the nobility of central Europe must thus be understood not only in relation to their historical context, but also in relation to the material practices and pursuits in which they participated and which brought them into existence. Collecting, possessing, classifying, displaying, studying, observing, and manipulating both things and materials became a means of knowing the world, and for collectors and scholars it also became a way of being in the world.[15] These activities that centered on objects moreover worked to situate their collectors as players in a social matrix in which particular types of material possessions and pursuits of knowledge emphasized prestige and status and actively symbolized power and control over their realm.

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[14] Ibid.

[15] Smith, "Alchemy as a Language of Mediation at the Habsburg Court," *Isis* 85, no. 1 (1994): 2.

A fundamental view in the approach to knowledge in the early modern period was the belief in the unity of all disciplines. As Rudolf J. W. Evans describes, "[t]he cosmology of the sixteenth century was a tightly-knit coherent system of aprioristic correspondences. The study of nature and man which followed from it must be set against a background where all science, despite its compartments of psychology, medicine, botany, metallurgy, and the rest, was intimately linked with the whole cosmic hierarchy."[16] In other words, no strict separation was perceived between these various fields of knowing, which all contributed to the larger project of the study of nature. A similar understanding must be related to the modern dichotomy of art and science. While *ars* related to the active practice and the work performed by the human hand in imitating nature, as Smith explains, *scientia* related to theoretical knowledge ascertained through didactic means.[17] Both were essential to the advancement of knowledge, constituting different types of knowledge-making.

The study of alchemy was polymathic of all the intellectual pursuits and was also part of the mainstream of the intellectual worlds.[18] Tara Nummedal has suggested that with its engagement in both the mystical and practical pursuits of the material world, alchemy was "part of an official philosophy" that intersected with fine art, religion, commerce, industry, and science.[19] One of its main ambitions was the purification of materials, or, more specifically, the transmutation of common metals into gold.

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[16] Evans, *Rudolf and His World*, 245.

[17] Pamela H. Smith, "Art, Science, and Visual Culture in Early Modern Europe," *Isis* 97, no. 1 (March 2006): 83-4.

[18] Ibid., "Alchemy as a Language," 5.

[19] Ibid.; Tara E. Nummedal, *Alchemy and Authority in the Holy Roman Empire* (Chicago: University of Chicago Press, 2007), 9.

Alchemy's goals also extended to the field of medicine and to the making of solutions that would improve and prolong human life.[20] Alchemy was also connected to the economic goals of metallurgy in which improved mining techniques and the production of metals promised profit. This practical aspect of alchemy became particularly important towards the end of the sixteenth century when the wealth of central European mines began to decline.[21] Alchemy was thus a familiar activity among princes of the Holy Roman Empire. This was in part because alchemy promised material gain but also because it offered ultimate control over life's forces through the uncovering of secret wisdom, accessible only through divine revelation. Based upon its metaphysical dimension, in which all understanding was believed to come from God, alchemy promised to reform knowledge, which had become corrupt through the passage of time, and ultimately to ameliorate human existence. Alchemy thus seemed to offer a way of manipulating not only the material world but also promised to restore order to a very chaotic and uncertain world, a world in which power was precariously balanced in the hands of feuding Calvinists, Lutherans, Catholics and Muslims. Within the religious and political conflicts of the sixteenth century, alchemy thus offered hope that through the uncovering of secret wisdom in nature, and the purpose of God in scripture and history, humanity would not only survive, but also flourish.[22]

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[20] Ivo Purš and Vladimír Karpenko provide a succinct summary on the subject in their book, *Alchymie a Rudolf II*, see especially the English summary to the volume, 759-80. An English translation of this book is forthcoming.

[21] Nummedal, *Alchemy and Authority*.

[22] See in particular Evans, *Rudolf and His World*, 201 and Bruce T. Moran, *The Alchemical World of the German Court: Occult Philosophy and Chemical Medicine in the Circle of Moritz of Hessen (1572-1632)* (Stuttgart: Franz Steiner Publishing House, 1991), 25.

Objects of art, or *Kunstkammer* pieces, associated with the above mentioned practices, exchanged as gifts offered a specially coded language of diplomacy between courts in the Holy Roman Empire whose rulers knew each other from meetings during special events and who visited each other at their respective residences.[23] Because art evoked an aspirational "high life" and ambitions that were mutually respected, a gift of an artefact that appealed to a prince's collecting sensibilities and particular interests—such as the handstone with which I began—could thus be especially potent; a gift, as a type of diplomatic ritual, could flatter adversaries into understanding, respect, and favour.[24] Gifts were also frequently given to potential patrons and functioned as show pieces or samples of one's work in order to gain employment at court, as in the case of Tycho Brahe who gave to Rudolf a presentation copy of his *Astronomiae instauratae mechanica*. Finally, in an age when great distances separating friends and relatives were not easily bridged, it was the exchange of gifts and letters that reinforced family bonds, intensified kinship and affiliations, and substantiated social position, status, reputation, and facilitated the transfer of information.[25] In short, gifts bridged distances.

[23] Dirk Syndram, "Princely Diversions and Courtly Display: The Kunstkammer and Dresden's Renaissance Collections," in *Princely Splendor: The Dresden Court 1580-1620*, ed. Dirk Syndram and Antje Scherner (New York: Metropolitan Museum of Art, 2004), 57.

[24] Robin Cormack, "But Is It Art?," in *Byzantine Diplomacy*, ed. Jonathan Shepard and Simon Franklin, (Aldershot: Variorum: 1992), 236.

[25] Almudena Pérez de Tudela and Annemarie Jordan Gschwend, "Luxury Goods for Royal Collectors: Exotica, Princely Gifts and Rare Animals Exchanged Between Iberian Courts and Central Europe in the Renaissance (1560-1612)," *Jahrbuch des Kunsthistorischen Museum Wien* 3 (2001): 5. Also see Natalie Zemon Davis, *The Gift in Sixteenth Century France* (Madison: University of Wisconsin Press, 2000).

Rudolf as collector

> "Whoever so desires nowadays has only to go to Prague (if he can), to the greatest art patron in the world at the present time, the Roman Emperor Rudolf the Second; there he may see at the Imperial residence, and elsewhere in the collections of other great art-lovers, a remarkable number of outstanding and precious, curious, unusual, and priceless works."[26]

As Karel van Mander's statement suggests, Rudolf's *Kunstkammer* was hailed by contemporaries as one of the most extensive collections in Europe. In the period during which the imperial court resided in Prague (1583-1612), the city and court had become an important center for the arts and sciences and an integral space of exchange for the production of knowledge, attracting scholars and artists from across Europe.[27] Like many of his contemporaries, Rudolf collected an array of expertly crafted artefacts in his *Kunstkammer*. And like many other early modern collectors, he had a marked interest in nature, collecting animals, plants and natural specimens from many parts of the world, particularly India, Persia, Turkey, Siam, China, and other places of the so-called East as

[26] Karel van Mander, *Het Schilderboeck waer in Voor eerst de leerlustighe Iueght den grondt der Edel Vry SCHILDERCONST in Verscheyden deelen Wort voorghedraghen* (Haarlem, 1604), as cited in Evans, *Rudolf II and His World.* 162.

[27] See Eliška Fučíková et al., *Rudolf II and Prague: The Court and the City* (Prague, London, New York: Prague Castle Administration, Thames and Hudson, 1997).

well as from North and South America.[28] As I explain below, Rudolf's collecting initiatives and the expansion of the Imperial *Kunstkammer* in Prague should be seen in relation to the study of nature—its materials and their manipulation—as should all the material practices at Rudolf's court: from painting, sculpture, the glyptic arts, and technological innovation, to the study of astronomy, astrology, alchemy, botany, and mineralogy.

Many of the artefacts in Rudolf's collection were obtained through inheritance or as purchases, and many were given to him as gifts.[29] Rudolf's *Kunstkammer* also grew as a result of commissions that were produced by artists at the court in Prague; in other words he patronized and employed expert artists who made works of art specifically for the *Kunstkammer*, some of which he later presented as gifts. These individuals were numerous, and ranged from painters, sculptors, and architects to hardstone carvers, goldsmiths, metallurgists, gem cutters, and clock makers. Complementing these creative energies were also scholars whose ranks included mathematicians, botanists, astronomers, and alchemists. Important scholars include Johannes Jessenius (1566-1621),

[28] See for example, Thomas DaCosta Kaufmann, "Remarks on the Collection of Rudolf II: The Kunstkammer as a Form of *Representatio*," *Art Journal* 38, no. 1 (1981): 22–28; Eliška Fučíková, "The Collections of Rudolf II in Prauge: Cabinet of Curiosities or Scientific Museum?," in *The Origins of Museums: The Cabinets of Curiosities in Sixteenth- and Seventeenth-Century Europe* (Oxford: Clarendon Press, 1985), 47–53; Beket Bukovinská, "Die Kunst- und Schatzkammer Rudolfs II.: Der Weg vom Rohmaterial zum Sammlungsobjekt als ein Ereknntnisprozess," in *Der Zugang zum Kunstkwerk: Schatzkammer, Salon, Ausstellung, "Museum"*, Vol. 4 (Vienna: Böhlau, 1986), Eliška Fučíková, "Die Sammlungen Rudolfs II," in *Die Kunst am Hofe Rudolfs II*, ed. Eliška Fučíková, Beket Bukovinská Ivan Muchka (Prague: Aventinum, 1988), 209–46; Ibid., "Zur Konzeptionen der Rudolfinischen Sammlungen," in *Prag um 1600. Beiträge zur Kunst und Kultur am Hofe Rudolfs II.* (Freren: Verlag Luca, 1988), 59–62; Kaufmann, "From Mastery of the World to Mastery of Nature: The Kunstkammer, Politics, and Science," in *The Mastery of Nature: Aspects of Art, Science, and Humanism in the Renaissance* (Princeton: Princeton University Press, 1993), 174–94; Ibid., "From Treasury to Museum: The Collections of the Austrian Habsburgs," in *The Cultures of Collecting*, ed. John Elsner; Roger Cardinal (London: Reaktion Books, 1994), 137–54.

[29] For an overview of some of the artefacts in Rudolf's collections that were given to him as diplomatic gifts see Karl Vocelka, *Die politische Propaganda Kaiser Rudolfs II. (1576-1612)* (Wien: Verlag der Österreichischen Akademie der Wissenschaften, 1981),166-173.

who conducted the first public dissection in Prague in 1600 at the Charles University;[30] Tadeáš Hájek z Hájku (Tadeus Hagecius, 1525-1600), a Bohemian astronomer and physician who contributed to the development of psychology; Martin Ruland (1569-1611), an important alchemist who engaged in the study of mining; Ottavio Strada (1518-1588), the antiquarian; Anselmus Boetius de Boodt (1550-1632), a physician and mineralogist who became very influential on future study of minerals; Tycho Brahe (1546-1601), who conducted the most accurate naked eye measurements of his time; and Johannes Kepler (1771-1630), who established the laws of planetary motion while under Rudolf's employ, among many others.[31] Despite the important contributions that occurred at the Imperial court in Prague, as I explain below, Rudolf's cultural activities have not always been perceived as significant by historical scholars; in fact, for a long time they were overlooked.

Throughout the nineteenth and early twentieth centuries Rudolf's patronage and collecting initiatives were not understood as essential to understanding the history of collecting and cultural development in Europe. They were perceived as the product of a deranged mind, and his *Kunstkammer* as an uncontrolled collection of curiosities and wonders. To a large extent popular media expounded this view, particularly in films of the first half of the twentieth century, as did studies by scholars, such as Frances Yates,

[30] György Endre Szönyi, "Scientific and Magical Humanism at the Court of Rudolf II," in *Rudolf II and Prague*, 224.

[31] Nicolette Mout, "The Court of Rudolf II and Humanist Culture," in *Rudolf II and Prague*, 220–22.

C. Bolton, and Julius Schlosser.[32] Certainly towards the end of his rule Rudolf II was not able to maintain peace in Europe as the head of the Holy Roman Empire, and periodically during his reign he suffered from mental health issues. The scholarship that memorializes Rudolf II as an ineffectual ruler instead of as one of the most important early modern patrons of the arts and sciences is also a result of the dispersion of the material evidence of his achievements as patron and collector in the decades and centuries following his death.[33] Unlike the collections of the Wittelsbach Dukes in Munich, or that of the Saxon Electors in Dresden—whose courts remained in situ for centuries—Rudolf's great *Kunstkammer* of *naturalia*, *artificilia*, and *scientifica* in Prague had a short lifespan of only twenty-nine years. After his death in 1612 many of the most important artefacts were moved to Vienna where his brother Mathias assumed rule over the Holy Roman Empire and where he established his capital; some were sold to pay off debts; many were looted by the Saxon and Swedish armies in the decades following, and most of what remained into the eighteenth century in Prague was auctioned off in 1772.[34] Therefore,

[32] For example, films produced during the first half of the twentieth century that support this view are as follows: Paul Wegener and Carl Boese, *Der Golem*, 1920; Julien Duvivier, *Le Golem*, 1936; Martin Frič and Jiří Krejčík, *Císařuv Pekař - Pekařuv Císař*, 1951. For an earlier assessments of Rudolf's Kunstkammer see Julius von Schlosser, *Die Kunst-und Wunderkammern der Spätrenaissance* (Leipzig: Linkhardt & Biermann, 1908); Frances Yates, *The Rosicrucian Enlightenment* (London: Routledge, 1972); H. C. Bolton, *The Follies of Science at the Court of Rudolf II (1576-1612)* (Milwaukee: Pharmaceutical Review Publishing, 1904).

[33] Eliška Fučíková, "The Fate of Rudolf II's Collection in Light of the History of the Thirty Year's War," in *1648. War and Peace in Europe*, ed. Klaus Bussmann and Heinz Schilling, Vol. II (Münster: Westfälisches Landesmuseum, 1998), 173–80; .

[34] Ibid., 179.

material evidence of Rudolf's significant investment in culture—in the arts and sciences—was not as readily evident.[35]

Another reason for the historical misinterpretation of Rudolf's artistic and scientific contributions is due to the fact that he exhibited an above average interest in, and support of what is often categorized as the occult arts. This field of interest, which includes alchemy, astrology, the study of the Kabbalah, and natural magic, has fairly recently been acknowledged as one of the many approaches that early moderns embraced in the effort to understand the world around them, as discussed earlier in this introduction.[36] It is now recognized that Rudolf was not alone in these pursuits. For example, among his contemporaries, the Landgrave Moritz of Hesse-Kassel (1572-1632) and the Saxon Electors (particularly Augustus I, 1526-1586) were all students and patrons of alchemy.[37] Rulers throughout Europe were patrons of astrologers, natural historians, and philosophers who offered access to secret knowledge. The fact that publications relating to the occult arts circulated freely amongst all major collectors of Europe speaks to the interest in the subject.[38]

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[35] A portion of Rudolf's former *Kunstkammer* has been reassembled by the Kunsthistorisches Museum in Vienna and is on permanent display in the renovated and expanded *Kunstkammer* rooms since reopening in 2013.

[36] Bruce T. Moran, *Distilling Knowledge: Alchemy, Chemistry, and the Scientific Revolution* (Cambridge, Massachusetts: Yale University Press, 2005).

[37] Ibid., *The Alchemical World*; Helen Watanabe-O'Kelly, "The Secrets of the Heavens and the Earth: Alchemy, Mining and Astrology at the Dresden Court," in *Court Culture in Dresden* (New York: Palgrave, 2002), 100–129.

[38] See Katharina Pilaski Kaliardos, *The Munich Kunstkammer: Art, Nature, and the Representation of Knowledge in Courtly Contexts* (Tübingen: Mohr Siebeck, 2013), 143-8. As Kaliardos explains, key texts, such as that of the German philosopher and medical practitioner, Theophrastus Bombastus von Hohenheim, better known as Paracelsus, circulated through courts that were not actively promoting alchemy, such as that of the Wittelsbach Dukes in Munich.

It is relatively recently that these so-called pseudo-sciences have come to be recognized not as mere "follies of science" that hindered human progress, but as a legitimate means of enquiry.[39] This is in part because historical query has shifted, and no longer assesses the past based upon the Enlightenment idea of progress, seeking instead to assess the past through a multifaceted lens that aims to understand the moment rather than providing a linear narrative. Furthermore, as Allison P. Coudert has shown, engagement with the esoteric, the magical, and the occult were in fact key pursuits that fostered what is referred to as the Scientific Revolution.[40] Coudert describes that "[t]he idea that man could change his environment for the better and harness the powers of nature to his own advantage had its roots in the magical world of Renaissance hermeticists, and the twin concepts of progress and reform that became the hallmarks of modern science emerged from the grandiose schemes of Renaissance magi, not from the patient accumulation of scientific evidence and scientific theories."[41] The recognition of the fact that early modern views of the world were multifaceted and embraced many different modes of knowing has also allowed scholarship to see Rudolf's fascination with the secrets of nature in a more productive light. Rudolf's interest in natural wonders and the secrets of nature were an elite preoccupation connected to preternatural philosophy and the spirit of curiosity and inquiry into the natural order of things. It is within this

[39] Bolton, *Follies of Science*, 13-4.

[40] Allison Coudert, *Religion, Magic, and Science in Early Modern Europe and America* (Santa Barbara, CA: Praeger, 2011).

[41] Ibid.,157.

framework that all cultural production at his court should be understood, as I explain in more detail below.[42]

In addition to these shifting focuses in historical points of query and methodology, the twentieth century also bore witness to the important discovery of the inventories of Rudolf's *Kunstkammer*, which spurred the growing interest into Rudolfine art and patronage. An important event in the history of scholarship, relating to the cultural production at the imperial court in Prague, was the discovery of Rudolf's *Kunstkammer* inventory, compiled in 1619 and published in 1937 (as discussed in Chapter Three of this dissertation).[43] This inventory, and others like it, demonstrates that in his patronage activities and in his support of the arts and sciences, Rudolf was following a well-established Habsburg tradition, as initiated by his grandfather Ferdinand I, continued by his father Maximilian II, and his uncle the archduke Ferdinand II.[44] As Paula Findlen has elaborated, "[r]ather than being the folly of a delusory prince, the *Kunstkammer* was a calculated part of Rudolf's persona as an omniscient ruler and a logical expansion of the Habsburg tradition of patronizing the arts and sciences."[45] Another important step forward for research on Rudolf's cultural investments was the discovery made in 1978 of another much older inventory compiled by Daniel Fröschel towards the end of Rudolf's

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[42] Lorraine Daston and Katharine Park, *Wonders and the Order of Nature, 1150-1750* (New York; Cambridge: Zone Books; MIT Press, 1998); Anthony Grafton, "Renaissance Histories of Art and Nature" in *The Artificial and the Natural: An Evolving Polarity,* ed. Bernadette Bensaude-Vincent; William R. Newman (Cambridge: The MIT Press, 2007), 184–210.

[43] Jan Morávek, *Nově objevený inventář rudolfinských sbírek na hradě pražském* (Praha: Archiv Pražského Hradu, 1937).

[44] On the history of Habsburg collecting see Elisabeth Scheicher, *Die Kunst und Wunderkammern der Habsburger* (Vienna: Molden, 1979); Horst Bredekamp, *The Lure of Antiquity and the Cult of the Machine: The Kunstkammer and the Evolution of Nature, Art and Technology* (Princeton: University of Princeton Press, 1995).

[45] Paula Findlen, "Cabinets, Collecting and Natural Philosophy," in *Rudolf II and Prague*, 211.

reign, between the years 1607-11.[46] The detailed information about the structure, content, value and breadth of Rudolf's former collections provided in these inventories were revolutionary in resituating understanding of Rudolf's *Kunstkammer*.

For Rudolf II and many of his contemporaries the gifts they exchanged played an important role in the politics of diplomacy, but the artefacts in and of themselves also mattered to them greatly in a subjective way. Rudolf's personal interests and tastes in the arts and sciences, even his personality, as some have illustrated, played an important role in the shaping of the cultural milieu in Prague, a topic that has been addressed in many recent publications.[47] What has not been adequately addressed, however, is *why* these things mattered to the people who collected and exchanged them.

Materiality and the gift

Recent studies on materiality that address the relationship between persons and things, between subjects and objects, and the questions of agency of things, written by scholars such as Daniel Miller, Webb Keane, Bruno Latour, Alfred Gell, and Arjun Appadurai provide methodologies for thinking about what activates gifts and the

[46] Rotraud Bauer and Herbert Haupt, "Das Kunstkammerinventar Kaiser Rudolfs II. 1607-1611," *Jahrbuch des Kunsthistorischen Museum Wien* 72 (1976). Erwin Neumann, "Das Inventar der Rudolfinischen Kunstkammer von 1607/11," in *Queen Christina of Sweden. Documents and Studies.* (Stockholm: Nationalmuseum, 1966), 262–65.

[47] For example, see H. C. Erik, Midelfort, *Mad Princes of Renaissance Germany* (Charlottesville: University Press of Virginia, 1994), 125-40; Evans, *Rudolf and His World*, 63-73; Werner Muensterberger, *Collecting: An Unruly Passion: Psychological Perspectives* (Princeton University Press, 2014), 191-195. Gertrude von Schwarzenfeld, *Rudolf II, der saturnische Kaiser* (München: Callwey, 1961).

interactions they engendered for Rudolf II.[48] The work of these authors in general questions how matter matters by addressing the various ways in which individuals and groups are constituted by their varied material worlds; that is, how subjects are fundamentally defined by objects, and how the material world shapes the social world. In my work, Latour's concept of agency and networks is particularly useful because it addresses the deployment of associations. This includes the actual movement of the thing between different frames of reference, and the multilayered types of connections and networks (such as the connection of certain objects to various material practices but also to other objects that they may resemble, imitate or copy as well as people with whom they may have come into contact or who they represent). Within the context of these contributions, gifts of things should thus be understood not as passive objects but as active participants within social, political, and material affairs.

One manner of addressing what animates a given thing in relation to its materiality is its status as a gift. Indeed, the subject of the gift has gained much attention since Marcel Mauss' highly influential work *Essai sur le don. Forme et raison de l'échange dans les sociétés archaiques* (1923). In this essay, Mauss examines premodern and non-European societies in relation to their gift-giving practices and explicates how the threefold obligation of giving, receiving, and reciprocating—a process which triggers cycles of mutual indebtedness—both affects and effects social relations more than

[48] Daniel Miller, ed., *Materiality* (Durham, N.C.: Duke University Press, 2005). Alfred. Gell, *Art and Agency: Towards a New Anthropological Theory* (Oxford: Clarendon Press, 1998); Webb Keane, "Sings Are Not the Garb of Meaning: On the Social Analysis of Material Things," in *Materiality* (Durham, N.C.: Duke University Press, 2005); Bruno. Latour, *Reassembling the Social an Introduction to Actor-Network-Theory* (Oxford; New York: Oxford University Press, 2005).

economic negotiations.[49] For Mauss, the modern development of a market economy (as exemplified by Western capitalism) driven by impersonal commerce between strangers is antithetical to societies organized around personalized gift exchange. This concept was later developed further by Mauss's followers, such as Claude Levi-Strauss, Maurice Godelier, and Aafke Kompter.[50] However, the notion of an ancient cultural system based on gift-giving and exchange being gradually and over time entirely replaced by a market based economy during the course of the medieval and early modern periods has been challenged.[51] Scholars from diverse disciplines, such as Marchall Sahlins, Claude Macherel, Nicholas Thomas, James G. Carrier, Barbara Sebek and others have shown that gift-giving remained an active material and social practice alongside a developing commercial system well into modern times.[52] Mauss's model of the threefold obligation (to give, to receive, and to reciprocate) has of course been complicated by research in diverse geographical contexts. For example, Annette Wiener argues that reciprocity is only the superficial aspect of gift exchange and that power is garnered from those things

[49] Marcel Mauss, *The Gift: Forms and Functions of Exchange in Archaic Societies* (New York: Norton, 1967).

[50] Claude Lévi-Strauss, *The Elementary Structures of Kinship*, ed. and trans. James Harle Bell, John Richard von Sturmer and Rodney Needham (Boston: Beacon Press, 1969); Maurice Godelier, *The Enigma of the Gift* (Chicago: University of Chicago Press, 1999). Also see *The Gift: An Interdisciplinary Perspective*, ed. Aafke E. Kompter (Amsterdam: Amsterdam University Press, 1996).

[51] Poul Grinder-Hansen, "Aspects of Gift-Giving in Denmark in the Sixteenth Century and the Case of the Rose Flower Cup," *Journal of Medieval History*, 37 (2011): 114-124.

[52] Marchall Sahlins, *Stone Age Economics* (Chicago: Aldine-Atherton, 1972); Chris A. Gregory, *Gifts and Commodities* (London: Academic Press, 1982); Claude Macherel, "Don et Réciprocité en Europe," in *Archives européens de sociologie* 24 (1983): 151–166; Barbara Rosenwein, *To Be the Neighbor of Saint Peter: The Social Meaning of Cluny's Property, 909–1049* (Ithica: Cornell University Press, 1989); Nicholas Thomas, *Entangled Objects: Exchange, Material Culture, and Colonialism in the Pacific* (Cambridge: Harvard University Press, 1991); James G. Carrier, *Gifts and Commodities: Exchanges and Western Capitalism Since 1700* (London: Routledge, 1995); Davis, *The Gift*.

that are kept away from circulation.[53] And as Cecily Hilsdale has pointed out, while the anthropological and sociological approaches mentioned above have recognized the importance of the ritual context within which gifts were exchanged as well as the social relations that can be triggered by their exchange, the focus of these scholars has been primarily on the gift-giving of unaltered natural objects and consumable goods, objects of a markedly different nature from the types of gifts that were given between European courts.[54]

More recently, scholars such as Robin Cormack, Alexander Nagel, Genevieve Warwick, Natalie Zemon Davis, Brigitte Buettner, Hilsdale, Almudena Pérez de Tudela and Annemarie Jordan Gschwend have recognized the importance of the gift within social relations of the medieval and early modern periods, in particular its performative efficacy in the production and reproduction of social relations and the representation of power and authority.[55] The giver, on the one hand, establishes status through the giving of sumptuous gifts, an act demonstrating largesse, generosity, wealth, knowledge, and access to precious and rare materials, as well as potential access to fine artists and

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[53] Anette Weiner, *Inalienable Possessions: The Paradox of Keeping While Giving* (Berkeley: University of California Press, 1992).

[54] Cecily J. Hilsdale, "Gift," *Studies in Iconography* 33 (2012): 171–82.

[55] Cormack, "But is it Art?"; Alexander Nagel, "Gifts for Michelangelo and Vittoria Colonna," *The Art Bulletin* 79, 4 (1997): 647-668; Genevieve Warwick, "Gift exchange and art collecting: Padre Sebastiano Resta's Drawing Albums," *The Art Bulletin* 79, 4 (1997): 630-646; Van der Velden, Hugo, *The Donor's Image: Gerard Loyet and the Votive Portraits of Charles the Bold* (Turnhout: Brepols, 2000); Brigitte Buettner, "Past Presents: New Year's Gifts at the Valois Courts, ca. 1400," *The Art Bulletin* 83, no. 4 (2001): 598–625; Hilsdale, "Constructing a Byzantine Augusta: A Greek Book for a French Bride," *Art Bulletin* 87/3 (2005): 458-83; Hilsdale, "The Social Life of the Byzantine Gift: The Royal Crown of Hungary Re-Invented," *Art History* 31, no. 5 (2008): 602–31. Pérez de Tudela and Gschwend, "Luxury Goods." For gift-giving among collectors and patrons, refer to Paula Findlen, "The Economy of Scientific Exchange in Early Modern Italy," in *Patronage and Institutions: Science, Technology, and Medicine at the European Court 1500-1750*, ed. Bruce T. Moran (Woodridge: Boydell Press, 1991), 5–24; Mario Biagioli, "Galileo's System of Patronage," *History of Science* 28 (1990): 18-25, 38-41.

craftsmen capable of crafting such objects. The receiver on the other hand, displays the favor shown to him/her by his/her peers or superiors by displaying such objects in the company of other gifts, which would testify to the connections elicited between himself/herself and the donor.[56] In this context the act of giving a gift can function as a vehicle of self-representation and self-aggrandizement by adding to the prestige of both giver and receiver. The study of the gift in the early modern period has also been appropriated to evaluate the extent of cultural transfer by examining the reception of gifts and their long term effects, as well as the agency of gifts in relation to cultural identity and cross cultural contact.[57]

In order to understand better the many complexities of what animates things and makes them meaningful, this dissertation builds on the literature discussed above by examining artefacts that functioned as gifts. Interrogating not only the importance of specific gifts within socio-political relations, I argue that it was through the thing's particular materiality that connections were generated between courts and people. I should clarify that by the term 'materiality' what is meant in this dissertation is not only the physical presence of an object—the material or medium of which it is made, its form, content, composition, color, size, its artistry, and iconography. Following the scholars mentioned above, the term materiality is used to denote an object's capacity to constitute human subjects and relations through its physical presence. In other words, what is of

[56] Helen Watanabe-O'Kelly, *Court Culture in Dresden: From Renaissance to Baroque* (New York: Palgrave, 2002), 71-84.

[57] Antje Scherner has examined the use of gifts and their reception in order to evaluate the extent of cultural transfer and the appeal of the "Italian model" at the court of the Saxon Dukes, Scherner, "Giambologna – Carlo di Cesare: Italian sculpture in Dresden in the late sixteenth century," in *Scambio culturale con il nemico religioso: Italia e Sassonia attorno al 1600*, ed. S. Ebert-Schifferer et al. (Milan: Silvana, 2007), 57-72.

interest is the materiality of the thing itself—how it may have addressed people or moved people, and how it may have facilitated or threatened their relations to others. Bringing forward that which animates works of art given as gifts—how their materials, journeys, and transmutations solicit diverse modes of social interaction—this dissertation highlights their inherently social status. The specific issues addressed relate to the artefacts' interconnected physical, artistic, technological, and political functions and associations. Broadly speaking, and within the context described above, this dissertation contributes to academic discourse on the gift by drawing attention to the material nature of these very diverse artefacts that were being made, transformed, collected, given, and exchanged among the courts of central Europe. I argue that these objects not only participated in the contemporary debates about nature and the status of knowledge, but that in various ways they in fact embodied those very processes.

Breakdown of chapters

Bringing forward the relationship between materials and iconography, Chapter Two, "Alchemical Transformations: Material Practices and Gifts Through Time," considers a particular moment in the life of two objects that were given by Emperor Rudolf II (r. 1583-1612) to Elector Christian II of Saxony (r. 1591-1611). During the latter's visit the Emperor gave Christian a bronze bust of the Elector and a double-sided object with the coat of arms of Saxony of *pietre dure* on one side and an allegorical oil painting on jasper-agate stone on the other. The exchange is considered in relation to a tradition of gift exchange between the courts, a practice that initiated and maintained connections between the two courts over three generations. While the iconography of the

gifts constituted a language that both rulers could understand, the Chapter argues that the potency of the gifts is located within the material and aesthetic properties of the artefacts in which nature is alchemically transformed into art, converting from one state of being into another. In this conversion, nature and artifice continually reverberate within the artefact and activate each other. Due to this material intensity, which reflected and shaped the rulers' shared interests in the material world and its manipulation, the artefacts in question actively contributed to the initiation and refinement of relations between the Elector of Saxony and the Emperor.

Chapter Three, "Extracting and Committing Stone: A *commesso di pietre dure* Gift and New Artistic Practices," addresses gifts that were given as part of diplomatic strategies that initiated a new material practice: the landscape made out of cut stone. The gift under consideration is a *commesso di pietre dure* tabletop sent from Ferdinando I de' Medici to Rudolf II in 1589 as a *bomboniera*, or wedding souvenir to mark Ferdinando's marriage to Christine of Lorraine. Shortly thereafter, Rudolf commissioned a second table from Florence, supplying Bohemian stone for its construction, stones that seemed to naturally reflect images of landscapes. The Chapter highlights the potency of the initial gift of the tabletop that instigated the making of landscape *commessi* in Prague and locates the transformative potential of the art form in the material of Bohemian stone.

Chapter Four, "Painted Gifts of Horns and Bezoar Stones: The Magic of Things," addresses gifts that maintained connections between family members across great distances, specifically between Habsburg family members living in Spain and those in Prague and Vienna. The Chapter considers artefacts that were perceived as magical and exotic—such as animal horns and bezoar stones (calcifications of undigested materials

that form in the stomachs of ruminants), things that featured frequently in shipments of presents. In the Chapter I examine painted images of these artefacts belonging to a compendium called Rudolf's *Tierbuch*, featuring paintings in oil on parchment of foreign and local animals, as well as products, or parts of animals. One of the pictures addressed is a representation of a horn of a rhinoceros (embellished with gold, jewels, and pearls) sent by Rudolf's mother to Prague. I posit that the power of the horn reverberates within the artefact's material, which is echoed by its bejeweled encasing and representation in Rudolf's *Tierbuch*, rendering the invisible power of the horn visible through aesthetic representation. The Chapter argues that it was above all the purported magical qualities of these natural artefacts that made them so valuable, qualities that are suggested in the manner of their representation in Rudolf's *Tierbuch*.

Chapter Five, "Instrumental Images and Gifts of Knowledge: Stars, Books, and Instruments," takes up gifts from scholars seeking employment at court. In this Chapter I examine the particular case of the astronomer and alchemist, Tycho Brahe, who bequeathed his *Astronomiae instauratae mechanica* (Instruments for the restoration of astronomy) to Emperor Rudolf. This book presents Brahe's design of instruments, his contributions, and future aspirations in the field of astronomy. Focusing upon the distinctive combination of scientific objects concerned with the cosmos and the prestige value of the tradition and treatises devoted to their use, this Chapter highlights the power of the circulation of letters and of print. Due to the dissemination of the *Mechanica* that cultivated a network of Brahe's contacts and supporters prior to being given to the Emperor, the power of this gift was enhanced and contributed to Brahe's prestige for Rudolf. I argue that the appeal of the *Mechanica* to Brahe's network and ultimately to the

Emperor is due to its unique presentation of mathematical instruments, which were instrumental for his methods and contributions to astronomy.

Together the Chapters probe the materiality of diverse gifts; that is to say, they examine their *matter* and why they *mattered*. As I demonstrate, the gifts were discursive things not only because they were talked about in letters, publications, and inventories, with some even being quoted in other *Kunstkammer* artefacts. In some cases the artefacts were the cause of discord, especially when withheld.[58] I suggest that their discursivity was activated by their material properties that enact a transformation, such as the case of the painting on stone and the *commesso di pietre dure* artefacts in which nature and artificiality were placed in competition with each other (Chapters Two and Three). In other examples it is the magic of the artefacts, a property that was imbued in their very materials that made them discursively meaningful, and something that was rendered tangible through their representation in the art of painting (Chapter Four). Finally, in the case of the printed book, its transformative property relates to its replicability and its potential to transform print into patronage (Chapter Five). The artefacts under investigation were also discursive due to their vary nature as gifts that participated in and contributed to the many knowledge producing and interrelated pursuits at courts, particularly collecting, natural history, astronomy, and alchemy. Therefore, in this dissertation materiality refers to the relationship between the material transformation and the discursive transformation.

[58] Rudolf II asked to have the unicorn horn that had become part of the inalienable Habsburg treasure, which only the oldest male member of the household could possess, and was denied the object by his uncle Ferdinand II, causing disagreement between the two, see Chapter Four, 145-148.

Chapter Two

Alchemical Transformations: Material Practices and Gifts Through Time

Introduction

An oval stone slab encircled by a black wooden frame displays an allegorical scene set in an ambiguous landscape (Fig. 2). To the left, on a rocky outcrop, is the seated figure of Elector Christian II wearing the Electoral hat and grasping his Electoral sword. He sits in the company of an armoured Minerva, the goddess of wisdom, the arts, and war. Minerva holds a palm branch in her left hand and a small statue in her outstretched right hand; at her bare feet lay Turkish spoils of war. Above the slanted horizon line, against the lightest part of the sky, glides an eagle, and hovering high above the scene is the goddess Nike, who appears to be bursting forth from a red-tinged thunderous cloud, holding a palm branch in her right hand and a wreath in her left—a symbol of victorious peace. The composition of the four figures is unified by the irregular landscape, suggested by the shapes, striations and spots of red, brown, white, and yellow that occur naturally in the stone, which serve as the backdrop, but that are also echoed in the colours of the oil paint. Peace and victory are the themes of this allegorical painting, and are associated with the figure of the Duke, the protagonist. However, the allure of the picture is in the blurring of the oil paint and the naturally varied textures and colors of the jasper-agate that provide the foreground and the background, and which serve to amplify the narrative message of peace and victory. The skillful application of pigment by the brush of the artist—particularly in the areas of the landscape and sky—obfuscates the viewer's ability to differentiate between the artificial layers of the oil paint and the natural

markings of the stone; this calls into question the role of nature in this work of art. Is it nature's art that is being transformed through artifice or is artifice being taken over by nature's creation? It is this ambiguity that encourages a prolonged viewing and pondering of the narrative in the picture.

The allegorical image described above, painted by the court artist Hans von Aachen, is presented upon a two-sided *Kunstkammer* work of art composed of the jasper-agate slab on one side and a coat of arms of *commesso di pietre dure* (also known as Florentine mosaic) made by the Castrucci workshop in Prague on the other side (Fig. 3). The two panels are joined together by an ebony frame. The stone and wood artefact was presented as a gift to the Elector Christian II of Dresden by the Emperor Rudolf II during the former's visit to the Imperial court in Prague in 1607. During this visit, the Elector and his brother, the Duke Johann Georg, were graciously received. According to a contemporary report,

> …the Emperor Rudolf was extremely grateful and pleasant and walked out of his private chamber with his head bared into the knight's room towards [Christian II and Johann Georg] and welcomed them kindly and took them back into his chamber and honored them with precious and rare gifts and hosted them royally at his court until the 13th of July….[59]

The same report tells us that the Emperor even allowed Christian II's Lutheran preacher to hold two public sermons at the Prague Castle of Hradčany, which outraged many of the city's leading Catholics and attests further to the Emperor's intention of good will

[59] Pavel Skály ze Zhoře Histore česká. od r. 1602 do r. 1623. K. Tieftrunk. Vol. I, 1602-16 (Prague: 1865), 81, Cited in Bedřich Jenšovský, *Politika Kurfiřta saského v čechách v posledních letech vlády Rudolfa II* (Praha 1912), 12. Translation mine.

towards his Saxon visitors.[60] Rudolf also held three audiences with Christian and Johann Georg in his *Kunstkammer*, an action that may be interpreted as a sign of favour for two reasons: Rudolf at times allowed dignitaries to wait for months before finally granting them an audience.[61] Secondly, besides the imperial court artists who made use of the Emperor's collection in their work, only a few individuals had the privilege of seeing his *Kunstkammer* with their own eyes.[62]

After a week-long stay in Prague, from the 6th to the 13th of July, the Elector of Saxony reported that, "his Imperial Majesty [Rudolf II] took such good care of us that there was not one hour during which we were sober."[63] These were the words of a satisfied guest who left the premises of Prague castle not only inebriated but also bearing gifts, which the Emperor Rudolf had had especially created by his artists out of costly materials for the *Kunstkammer* of the Saxon Elector and Arch Marshall of the Holy Roman Empire. As the Venetian ambassador, Francesco Soranzo reports, the Dukes left the premises of Prague castle gifted with horses, jewels "*et alter gentilezze*" [and other

[60] Adam the Younger of Valdštejn was assigned as the Elector's guide and reports the main comings and goings of the visit: He met the Elector, his brother and their entourage of 450 horses [*půl páta sta koni*]. The following day, July 4th, they travelled from Žitava to Mimoň and then to Bělá for the night. They arrived in Prague at 9 am. The following day, on July 8th, the Emperor held an audience with the Elector and his brother. On July 10th another audience was held, and another on the 12th, see Marie Koldínská, *Deník Rudolfinského dvořana: Adam mladší z Valdštejna*, 1602-1633 (Prague: Argo, 1997), 142.

[61] For example, in 1605 the ambassador to Duke of Savoy, Carlos Francesco Manfredi, waited nine months to see the Emperor before being granted an audience, see Findlen, "Cabinets, Collecting and Natural Philosophy," 212.

[62] See Thomas DaCosta Kaufmann, *Variations on the Imperial Theme in the Age of Maximilian II and Rudolf II* (New York: Garland Publishers, 1978), 105-113. See also Ibid., "Mastery of the World," 179; and Ibid. "Remarks on the Collection of Rudolf II," 22.

[63] "I. Mt. halten mis so wol dass ich auch fast keine Stunde nüchtern zu Prag gelebt," *Briefe und Akten*, v. 898-900, as cited in Evans, *Rudolf and His World*, 88. For a description of the visit see Josef Janáček, *Rudolf II a jeho doba* (Prague: Nakl. Svoboda,1988), 402.

kindness/goods/things] in the value of 10 000 Gulden.[64]

Two of these gifts—objects that have remained in the collection of the Saxon Electors to the present day—are the main subject of this Chapter. The first gift given by Emperor Rudolf to the Saxon Elector is the stone painting and *commesso* work with which I began. The second gift is a bronze bust of Christian II, designed by Rudolf's court sculptor, Adrian de Vries in 1603, and cast by Martin Hilliger (Fig. 4). Modeled on a bronze life size bust of Emperor Rudolf II, the sculpture presents a youthful idealized Christian II gazing confidently and self-assuredly into the distance. He wears ceremonial armour that is adorned with figural motifs of a head of a lion (on the back), a gorgon (suspended on a string just below the neckline), and the Habsburg double-headed eagle holding in its talons a medallion with the likeness of Rudolf II in profile. Scrolling vines decorate virtually the entire surface of the armour, intermingled with flowers and peacocks. The base that supports the bust consists of the Electoral shield flanked by two female figures facing each other and clasping hands, and a bundle of arrows across the foot of the pedestal. As this Chapter argues, while iconography of the two artefacts legibly constituted the relations between Prague and Dresden, what made them especially potent gifts was their particular materiality, which amplified the political message the gifts embodied.[65]

Kunstkammer works of art such as these, presented by Rudolf to Christian on the latter's visit to Prague, are usually analyzed in exhibition catalogues and in scholarly

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[64] Lars Olof Larsson, *Adrian de Vries: Adrianvs Fries Hagiensis Batvvs, 1545-1626* (Vienna: Schroll, 1967), 24.

[65] As Kaufmann points out, the painting on jasper-agate with the Saxon coat of arms of *commesso di pietre dure* appears in the 1610 Dresden Inventory on Fol. 415r. and was first identified as originating in Prague by Eliška Fučíková and Beket Bukovinská, Kaufmann, *Variations on the Imperial Theme*, 113n27.

journals in respect to their status as *objets d'art* within the *Kunstkammer* and focus mainly on the artefact's provenance and iconography.[66] The function of their materiality—the artefacts' intrinsic properties and qualities connected to the virtuosic handling by the artist and to the visual and material practices they embody—in relation to the social networks of early modern European courts, is often not fully addressed. As I elucidate in the present Chapter, through their subject matter both of the gifts under consideration address the Elector directly and overtly connect him to Habsburg rule. However, as I argue, it is the materiality of these objects—the valuable substance from which they are made, the virtuosic manner in which they are crafted, and the stunning effects they produce—that makes the message of these gifts particularly potent.

The giving of such extravagant gifts tailored especially for the Saxon Elector follows an established connection between the courts of Dresden and Prague. Despite religious differences, Christian II's grandfather, the Elector Augustus, was on amiable terms with Emperor Maximilian and his brother, the Archduke Ferdinand of Tyrol, his

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[66] In relation to the *commesso* work with the painted allegory on jasper-agate see, Jutta Kappel, Ein "commesso in pietre dure" aus der Hofwerkstatt Kaiser Rudolfs II. zu Prag um 1600, *Dresdener Kunstblätter* 34 (1990), 104–109; Ibid., "Die Türkennot des Kaisers: Zu einigen Aspekten der Darstellung des Türkenkriges (1593–1606) in der Hofkunst Rudolfs II," in *Im Lichte des Halbmonds: Das Abendland und der türkische Orient* (Dresden: Staatliche Kunstsammlungen Dresden, 1995), 132–133, 139; Kaufmann, Thomas DaCosta. "Representation, Replication, Reproduction: The Legacy of Charles V in Sculpted Rulers' Portraits of the Sixteenth and Early Seventeenth Century," *Austrian History Yearbook* 43, no. 1 (2012): 1–18. For literature on the bronze bust see, Walter Holzhausen, "Die Bronzen der kufrürstlich sächsischen Kunstkammer zu Dresden," *Jahrbuch der Preußischen Kustsammlungen* 54 (1933): 79–88; Larsson, *Adriaen de Vries*, 36–39; Protzmann, Heiner. "Verborgene Schätze" Der Skulpturensammlung: Eine Sonderausstellung im Albertinum." *Dresdener Kunstblätter* 36 (1992): 34–43; Volker Krahn, '*Von allen Seiten schön:' Bronzen der Renaissance und des Barock*, ed. Volker Krahn (Berlin 1995), 442; Kappel, *Im Lichte des Halbmonds*, 140; Frits Scholten, "Adriaen de Vries, Kaiserlicher Bildhauer," in *Adriaen de Vries 1556–1626. Augusburgs Glanz – Europas Ruhm*, ed. Björn R. Kommer, (Heidelberg, 2000), 30; Jürgen Müller and Bertram Kaschek, "Adriaen de Vries: 'Bildnisbüste Rudolfs II.: von 1603," *Studia Rudolphina* 1 (2001), 2–16; Dirck Syndram and Antje Scherner eds., *Princely Splendor: The Dresden Court, 1580–1620* (New York: Metropolitan Museum of Art, 2004), 104-5; Jane L. Bassett. "Bust of the Elector Christian II of Saxony," In *The Craftsman Revealed: Adriaen de Vries, Sculptor in Bronze* (Los Angeles: Getty Publications, 2008), 97-101; Thomas DaCosta Kaufmann*, "*Repräsentieren, Replizieren, Reproduzieren: Herrscherporträts der Renaissance," in *Drei Fürstenbildnisse: Meisterwerke der "repraesentatio maiestatis" der Renaissance,* ed. Martina Minning (Dresden, 2008), 17–18.

friend since childhood.[67] The two maintained a strong connection over the years—one that was sustained over three generations though the exchange of gifts between their heirs, a topic that is explored in more detail below.

Sustaining an amicable relationship with the Electors of Saxony was particularly necessary at this time. Since the issue of the Golden Bull in 1356 by Emperor Charles IV, which established the privileges of the seven Electors, Dresden functioned as the seat of the Elector of Saxony whose Imperial Office as Arch Marshall made him responsible for key organizational and jurisdictional duties within the Holy Roman Empire.[68] The Saxon Dukes were also vassals to the King of Bohemia, who at this time was also the Emperor; by law the Electors were thus obliged to remain loyal to the Emperor. By the sixteenth century, the Electorate of Saxony was an influential territory for the Holy Roman Empire in other key ways; it was one of its richest regions known for its support of mining initiatives, interest in science and technology, as well as internal reforms in the domains of administration and justice.[69] Moreover, by the 1550s Saxony was the center of German Protestantism, becoming one of the most influential Protestant territories within the Holy Roman Empire; it had also played a key role in the preservation of peace and unity.[70] The Peace of Augsburg (1555), a treaty that was strongly supported by Elector Augustus, was

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[67] Elector Augustus referred to Ferdinand II as his *gutten frunde* (my good friend), and frequently presented him with artefacts that the Archduke added to his collection, see Syndram, "Princely Diversions," 57.

[68] The Elector of Saxony was responsible for various organizational and jurisdictional duties, see Jochen Vötsch, "Electoral Saxony within the Empire and in Europe," in *Princely Splendor: The Dresden Court 1580-1620*, ed. Dirk Syndram and Antje Scherner (Dresden: Staatliche Kunstsammlungen , 2004), 23.

[69] Vötsch, "Electoral Saxony within the Empire," 27.

[70] For a succinct discussion on Saxony's role within the politics of the Empire during the reign of Elector August, Christian I, and Christian II, and Johann Georg, see Vötsch, "Electoral Saxony within the Empire," 22-33.

an effort at neutralizing religious conflicts in the region of central Europe through political means, and gave Protestants official status within the Holy Roman Empire. Its basic tenant was the policy *cuius region, eius religio* ("whose realm, his religion"); which implied that each territory was to have only one religion.[71]

Following the Peace of Augsburg, Saxony became central to imperial politics. Elector Augustus's approach—one that was adopted by his heirs—was to propagate a policy that maintained peace (both in domestic and foreign matters), supported nondenominationalism, and maintained a militant anti-Calvinist approach, while also maintaining loyalty to the Emperor.[72] The result was a period of relative peace between Protestant and Catholic factions of the empire that lasted until around 1600.[73] Both Emperors Maximilian I and Rudolf II adopted a similar approach when it came to issues of confessionalism, at least within the regions of Bohemia. Furthermore, as Holger Schuckelt has shown, Emperor Rudolf II was also indebted to Christian II for his service as close ally during the *Langer Türkenkrieg* (Long Turkish War, 1593-1606), the subject of the oil painting depicted on the jasper-agate.[74] Therefore, the royal treatment Elector Christian II received during his stay at the imperial court in Prague in 1607 followed both

[71] Ibid, 23.

[72] Ibid., 26.

[73] The friendship between the House of Wettin and the House of Habsburg was briefly threatened during the short of Electorship of Christian I, who tolerated Calvinist tendencies in his territory, as initiated by his Chancellor Nikolaus Krell, see Jutta Bäumel, "'CAVE CALVINIANE – D.N.K.' Das Richtschwert Des Kursächsischen Kanzlers Dr. Nikolaus Krell von 1601" *Dresdener Kunstblätter* 4 (2001), 144–151.

[74] See Holger Schuckelt, "Ein Kaiserliches Geschenk an Kurfürst Christian II. von Sachsen Im Jahr 1602," *Dresdener Kunstblätter* 45-46 (2002), 67–74; Kappel, "Die Türkennot des Kaisers,"125–133; Ibid., "Ein 'Commesso in Pietre Dure,' 104–109.

a socially and politically established tradition, one that was tailored to maintaining peace and concord between the Emperor and the Saxon Elector.

Addressing the relationship between materials and iconography, this Chapter examines the two gifts of *Kunstkammer* artefacts given by Rudolf to Christian during the latter's visit to Prague. I argue that in their startling combination of nature and artistry, in which nature is improved upon through artifice, the artefacts articulate transformative material possibilities that are also expressed in their political iconography. The gifts thus engender connections through their status as *Kunstkammer* artefacts that reflect and embody contemporary knowledge and knowledge making—practices that ultimately sought ways to control and to understand the volatile existence of the sixteenth and early seventeenth centuries in central Europe.

In what follows, I first explain the knowledge seeking material practices that inform our understanding of courtly gift exchange within the early modern period, paying particular attention to collecting and how its relationship to the social, the political, and the religious contexts of the period. Drawing attention to the fact that in the second half of the sixteenth century the connection between the courts of Prague and Dresden was initiated, maintained, and expressed though active gift exchange of *Kunstkammer* works of art, the historical relationship between Saxony and the Imperial court is addressed. I then turn attention to the analysis of the two gifts that Rudolf gave to Christian on the occasion of the Elector's visit to the imperial court in Prague.

Collecting and knowledge making

The practice of gift giving as exemplified by the generous presentation of beautiful *Kunstkammer* works of art on the part of Emperor Rudolf to the Elector Christian must be seen in relation to the courtly cultivation of collections—a practice that not only amassed and generated knowledge but that was also central to the politics of the period. In order to elucidate why such gifts would have been particularly potent things for Christian who sought to portray himself as a cultivated collector of the world, in what follows, the function of collecting as it was written about in the sixteenth and early seventeenth centuries by three early modern authors is expounded. Samuel Quiccheberg (1529-1567), Gabriel Kaltermarckt (?-before 1611), and Francis Bacon (1561-1626) were three scholars employed at three different European courts, who wrote a treatise, a short tract, and a play, respectively, on the topic of collecting, advising their respective patrons on the organization, the content, and the purpose of collections. While their proposal of what a collection should contain varies, they share in common the emphasis upon the informative, epistemological, and didactic purpose of the collection. It is clear that for these authors the fundamental purpose of a collection was its capacity to act as a repository of knowledge and knowledge building, demonstrating the ruler's control over the world, but also catered to his interests in the collecting, organizing, and display of the material world.

In 1565 Samuel Quiccheberg published the first known treatise on collecting titled *Inscriptiones vel tituli theatri amplissimi* (Munich, 1565) [*Inscriptions or Titles of the*

Most Ample Theater].[75] He proposes a system for the organization, display, content, and study of an encyclopaedic princely collection, which includes a practical research center. Quiccheberg also elaborates upon the architecture he sees as appropriate for such a project, a building in the form of an architectural theater that facilitates easy viewing and study.[76] Recognizing that not all collectors have the means to assemble samples of all things in the world at large, Quiccheberg clarifies that his book should be used as a guide by "each person according to the measure of his resources, as it pleases him" and that "each person might seek out from certain classes whatever he desires, or, from objects, those he is able to acquire."[77] Therefore, while the *Inscriptiones* are dedicated to the Duke Albrecht V of Bavaria—Quiccheberg's patron—the author's recommendations are intended to guide the general practice of collecting of both the nobility and patrician

[75] *Inscriptiones vel tituli theatri amplissimi complectentis rerum universitatis singulas materias et imagines eximias, ut idem recte quoque dici posit: Promptuarium artificiosarum miraculosarumque rerum, ac omnis rari thesauri et pretiosae supellectilis, structurae atque picturae quae hic simul in theatro conuqiri consuluntur, ut eorum frequenti inspectione tractationeque, singularis aliqua rerum cognitio et prudential admiranda, cito, facile ac tuto compari possit.* Autore Samuele a Qviccheberg Belga. In English the full title is as follows: Inscriptions or Titles of the Most Ample Theater That Houses Exemplary Objects and Exceptional Images of the Entire World, So That One Could Also Rightly Call It a: Repository of artificial and marvellous things, and of every rare treasure, precious objects, construction, and picture. It is recommended that these things be brought together here in the theater so that by their frequent viewing and handling one might quickly, easily, and confidently be able to acquire a unique knowledge and admirable understanding of things. Authored by Samuel Quiccheberg from the Low Countries, see Samuel Quicceberg, *The First Treatise on Museums Samuel Quiccheberg's Inscriptiones, 1565* ed. Mark A. Meadow, trans. by Mark A. Meadow and Bruce Robertson (Los Angeles: Getty Publications, 2013); See also Katharina Pilaski, *The Munich Kunstkammer: Art, Nature, and the Representation of Knowledge in Courtly Contexts* (Tübingen: Mohr Siebeck, 2013).

[76] Quiccheberg states, "Also, the term theater is not unsuitably, but instead quite properly employed here for a grand building that is in the form of an arc, or oval, or in the shape of an ambulatory….and that is constructed with high stories on four sides, in the middle of which a garden or interior courtyard might be left…, Quiccheberg, *The First Treatise on Museums*, 78; see also Koji Kuwakino, "The Great Theatre of Creative Thought: The *Inscriptiones Vel Tituli Theatri Amplissimi …* (1565) by Samuel von Quiccheberg," *Journal of the History of Collections* 25 (2013): 303–324.

[77] Quiccheberg, *The First Treatise on Museums*, 73-4.

classes, even those of "meagre fortune."[78] However, as Quiccheberg makes clear, those who have the means and the zeal, that is "the very rich" and "other noblemen," should seek to establish extensive collections, organizing and displaying objects in classes and groupings that he describes.[79] He adds that "on the basis of these classes, they [noble collectors] might measure the magnitude of their knowledge of all things, and they may be stimulated to imagine and investigate other matters in turn."[80] This passage reveals that for Quiccheberg the main purpose of a collection, above all, is the procurement and production of knowledge.

Throughout the *Inscriptiones* Quiccheberg elaborates how knowledge is generated from a thorough collection of things taken from nature and of things that had been created by people.[81] For example, addressing the assembling of things perceived as exotic due to their origin in foreign places, for Quiccheberg this leads to the "understanding of foreign customs and craftsmanship."[82] Similarly, in relation to the collecting of arms and armour

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[78] Ibid., 74.

[79] Quiccheberg explains that a *Kunstkammer* "is a conclave for works of art," and a *Wunderkammer*, is "a collection of wondrous objects," Ibid., 99. Quiccheberg recommends that objects in the collection are organized into five classes of objects: First Class: things that pertain to the founder and creator of the collection, concerned with representation of the prince and founder; Second Class: examples of human artifice and artistry; Third Class: things of nature, or *naturalia*; Fourth Class: tools of artifice that allow the means of acting on nature; Fifth Class: objects that enact knowledge, or representations, including things that may be studied or aesthetically contemplated. Each class is further subdivided into further *inscriptions* or titles that group related objects. For a thorough discussion of the contents and interrelatedness of the classes, see Mark Meadow, "Introduction," in *The First Treatise on Museums: Samual Quiccheberg's Inscriptiones 1565*, ed. Mark A. Meadow, trans. Mark A. Meadow and Bruce Robertson (Los Angeles: Getty Publications, 2013), 14-25.

[80] Quiccheberg, *The First Treatise on Museums*, 74.

[81] Quiccheberg truly believes that his "theater" is most thorough in addressing all that "universal nature embraces, that all books teach, that all of human life can offer," that there is nothing in the world in terms of disciplines, art works to be examined, or even "the state of life imagined" that may not be studied using the equipment, "means of support," or the examples provided in his recommendations for the ideal *Kunst-* and *Wunderkammern*, Quiccheberg, *The First Treatise on Museums*, 91.

[82] Ibid., 64.

of non-European peoples, Quiccheberg suggests that comparing them to locally produced weapons may lead to domestic innovation or improvements in quality or design.[83] Referring to the collection of oil paintings by the most important artists, he explains that connoisseurial knowledge may be gained: "…in these demonstrations of artistic skill it might be observed to what extent one artist seems to have surpassed the other in subject matter, proportion, gesture, optical effects, variety, and ornaments as well as in other respects worthy of note.[84]" In relation to the collecting of coins, which are important for their philological value, he observes their use for the study of genealogy and for the establishment of legitimate succession, since they present portraits and dates. As Mark Meadow points out, Quiccheberg goes as far to say that knowledge about modern coins, including their composition, weight, and value, could lead to peace and restore "Europe to a most peaceful and harmonious condition (however much it may be absent in this region)."[85] Quiccheberg also emphasizes the importance of the exchange of things among collectors in order to "enhance the refinement of the entire world and to illuminate all disciplines of study."[86] Quiccheberg thus allots extensive power to things, not only suggesting that the objects can serve as tools for study, but that a deeper understanding and improvement of the world may be achieved through their accumulation and study.

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[83] Ibid., 84.

[84] This is listed under the Fifth Class, Inscription I, Ibid., 69.

[85] Ibid., 17, 81.

[86] "…if only those whose collections abound with the varieties of this sort of things would assist certain others more liberally! For who would not have wished to help Conrand Gesner in collecting animals, or Lenhard Fuchs in depicting the species of plants, or Georg Agricola in describing metals…Who, though not likewise a prince, would not desire with the utmost zeal to enrich now and then, with the resources at one's immediate disposal, the endeavours of Maximilian II while Emperor, or Albrecth of Bavaria, so as to enhance the refinement of the entire world and to illuminate all disciplines of study?" Quiccheberg, *The First Treatise on Museums*, 81.

The immense value that Quiccheberg derives from the study, the accumulation, and the organization of things is made clear in the following passage, which I cite in full:

> And thus for the aspiring leader in a theater of the kind I have just planned to set up with an eye for practical matters (granted that he be involved in it for some time)—if he contemplates the names given to all the present objects…and if he does not prove to be completely ignorant about what classes he should properly choose but is familiar with a certain style of learning, and has examined what things should be considered as similar, different, opposite, or in a further subordinate class—it cannot be but that in the shortest time, without great exertion and dangers or troubles (which would in general have to be faced in the investigations of things), he will acquire unbelievable practical knowledge regarding everything and a manifestly divine wisdom. For while books are the other common equipment of all disciplines, here—through the observation of paintings, the examination of objects, and the display of the world of instruments, assisted by the tables of divisions and reliable synopses—everything becomes clearer and more comprehensible.[87]

What Quiccheberg insists upon is that for rulers the contemplation and examination of things in relation to each other, organized in a space that makes the artefacts readily visible and accessible, allows the sovereign to gain knowledge that is not only practical but also divine; that is, knowledge befitting a royal prince whose rule is sanctioned by God. In an earlier section where Quiccheberg offers more detailed recommendations and advice, he elaborates how such knowledge is necessary for the rule of state. Quiccheberg writes:

> Indeed, I also judge that it cannot be expressed by any person's eloquence how much wisdom and utility in administering the state—as much in the civil and military spheres as in the ecclesiastical and cultural—can be gained from examination and study of the images and objects that we are prescribing.[88]

[87] Ibid., 91.

[88] Ibid., 74.

For Quiccheberg, knowledge generated by a collection is thereby directly linked to effective rule, particularly in the realms of economy, defense, religion, and culture.[89] While the pleasure derived from the visual interaction with the many artefacts is a function of the *Kunstkammer* that Quiccheberg does not exclude, he makes clear that the *Kunstkammer*'s most essential function is the production of knowledge about all things. This knowledge is in turn necessary for the administering of state, a notion that derives from medieval concepts of the divine emperor, who rules over the secular and the ecclesiastical.[90]

Turning now to Gabriel Kaltermarckt, who advises Elector Christian I in the elaborate tract *Bedenken wie eine Kunst-cammer aufsurchten seyn möchte* [*Thoughts on how a Kunstkammer should be formed*] (1587) on the content and organization of a *Kunstkammer* worthy of a prince, we can see that Kaltermarckt places special emphasis on the presence of an art collection.[91] While offering praise for the already extant Electoral collection established by Augustus I in 1560, with its plethora of arms and armour, tools, and scientific instruments, and its significant library, Kaltermarckt laments the absence of an art collection of sculpture and painting. [92] He insists that "a well

[89] As Meadow explains, the 'wunderkammer' is not only a place that provides entertainment and amusement for the aristocracy, or serves as a tool promoting a prince's magnificence but also functions as an essential place of research and study "working directly at the service of the state's economy, defense, religions, and culture, " see discussion by Meadow, "Introduction," 5.

[90] Quiccheberg, *The First Treatise on Museums*, 78, 82, 83, 85.

[91] Kaltemarckt's recommendations, "Thoughts on how a Kunstkammer should be formed,"[*Bedenken, wie eine Kunst-Cammer aufzurichten seyn möchte*], has been transcribed and translated in the article by Barbara Gutfleisch and Joachim Menzhausen, 'How a *Kunstkammer* Should be Formed:' Gabriel Kaltermarckt's Advice to Christian I of Saxony on the Formation of an Art Collection, 1587, *Journal of the History of Collections* 1 (1989): 3-32. The original manuscript, MS Loc. 98 35 [G. Kaltemarckt, 'Bedenken, wie eine Kunstcammer aufzurichten seyn möchte' (1587)] is located at the Dresden Staatsarchiv. See also Kaufmann, "Mastery of the World," 274–294.

[92] Gutfleisch and Menzhausen, 'How a *Kunstkammer* should be formed,'10.

equipped art collection ought to primarily contain three things. First, sculptures. Secondly, paintings. Thirdly, curious items from home and abroad made of metals, stone, wood, herbs—whether from above the ground, from within the ground or from the waters and sea."[93] The above categories should be followed by "utensils used for drinking or eating which nature or art has shaped, followed by "antlers, horns, claws, feathers and other things…"[94] Although the collecting of *naturalia* was something that Kaltermarckt advocated, he places special emphasis upon the importance of art, particularly sculpture.

While Kaltermarckt's advice to the Elector was motivated by his own self-interests—he was vying for the position of artist adviser who would bring to fruition the type of collection he is proposing—similar to Quiccheberg's approach, Kaltermarckt's elaborate account of his art historical knowledge and his enthusiasm for the project demonstrates the importance of the collecting of art at this time. In order to prove himself a worthy candidate, Kaltermarckt goes to significant lengths, demonstrating his expertise and knowledge about the most important artists of antiquity and of the Renaissance—from Italy, the Netherlands, and Germany—including a ranked list of contemporary European artists. Kaltermarckt concedes that since highly prized originals of antique sculpture are too expensive or impossible to obtain, he devotes a significant portion of his text to explaining why casts of famous sculptures are appropriate alternatives.[95] He even offers the route that agents should request when shipping original and copied works of art

[93] Ibid., 11.

[94] Ibid.

[95] Barbara Marx, "Wandering Objects, Migrating Artists: The Appropriation of Italian Renaissance Art by German Courts in the Sixteenth Century," in *Cultural Exchange in Early Modern Europe, Volume 4* ed. Robert Muchembled and William Monter (New York: Cambridge University Press, 2007), 220.

from Italy to Dresden.[96]

Above all, in his tract Kaltermarckt emphasizes the didactic function of an art collection, or picture gallery. He states that "…illustrious potentates also established picture galleries or art collections…in order to encounter the events of history and those who through their deeds created them not only in books but also, through drawings and paintings, as a delight to the eye and a strengthening of memory, as a living incitement to do good and avoid evil, and also as a source of study for art-loving youth."[97] Therefore, a picture gallery containing the work of the most renowned Italian, Netherlandish, and German artists would promote academic studies, similar to the *Accademia del Disegno* in Florence. Following Kaltermarckt's claim, when used correctly art would also aid in Christian worship. He notes: "[t]he fact that [sculpture and painting], as well as music, are the most amiable is generally acknowledged, since music, through hearing, and the visual arts, through sight, arouse man to proper and honest joy, and are nobly given and ordained by God."[98] Although these arts have been misused in idolatrous practice, he continues, if used appropriately by people of the "true religion," (meaning Lutheranism), painting and sculpture can bring one closer to God. To emphasize this point, Kaltermarckt adds, "[w]e ought, therefore to thank God Almighty greatly for his having given to us, in addition to the revelation of his holy and divine Word, the ability to appreciate the right use of the visual arts, and we should, besides such thanksgiving, ask

[96] "What is copied in Florence can be carefully packed into chests and brought by water to Genoa; from Genoa it is shipped to London, from London to Hamburg, from Hamburg home to Dresden…Copies made at any other place than Ferrara, Parma and Mantua, are most conveniently sent on the river Po to Venice, whence they arrive here via London and Hamburg," Gutfleisch and Menzhausen, 'How a *Kunstkammer* should be formed,' 28.

[97] Gutfleisch and Menzhausen, "'How a Kunstkammer Should be Formed,' 4.

[98] Ibid., 8.

Him that we may fruitfully put into practice this knowledge or insight."[99] Therefore, for Kaltermarckt, the power of art to delight and to instruct is especially noteworthy.

Kaltermarckt also posits that an art collection is imperative in order to bring rulers to greatness and to record their memory for posterity. He states that

> …although many serene and powerful emperors, kings, princes and sovereigns have made their memory immortal through famous wars, through seizures and conquests of many countries, cities and fortresses, through founding and supporting good policies and a peaceful regime for the protection of their subjects, and through other praise worthy activities, it surely is clear and certain that it is rather through writings and paintings, more than through any other means, that their names and deeds remain preserved to our present time—as the works of history clearly show…[100]

In other words, while all the activities in which rulers typical engage that bring them acclaim in the realm of politics—such as wars and battles—it is above all through the patronage of the arts that memory of them may endure. To prove his point Kaltermarckt gives examples of illustrious rulers who had achieved high status as great rulers but also as great patrons of the arts, namely the emperors Maximilian II and Rudolf II, Francis I of France at Fontainebleau, and King Henry VIII of England.[101] To show that patronage of the arts can also raise one's status to that of nobility, Kaltermarckt reminds the reader of the house of Medici who, had "… ascended to princely, indeed almost kingly majesty, more through collections of good books and through supporting the liberal arts of the burghers than through any other praiseworthy deed."[102] Thus for Kaltermarckt, in order for rulers to engrave their names in social memory and preserve their greatness, they must

[99] Ibid., 8-9.

[100] Ibid., 7

[101] Ibid., 10.

[102] Ibid., 7-8.

be great patrons of the arts.

Another contemporary text that advises rulers on the necessity and merits of collecting and of the uncovering of secrets of nature is the *Gesta Grayorum: Or the History of the Prince of Purpoole Anno Domini 1594*. The *Gesta Grayorum* is an account of the Christmas revels performed at the Gray's Inn in London during Christmas festivities held in 1594/95 that included the performance of a masque at which Queen Elizabeth I was the most eminent guest. Its authorship, particularly the section concerning the counsellor's speeches, has been attributed to Francis Bacon.[103] While it is unlikely that Rudolf or Christian would have had access to the text, especially because it was only first published in 1688, similarly to Quiccheberg's *Inscriptiones* and Kaltermarckt's tract, the *Gesta Grayorum* points to the discursive nature of collecting, but Bacon's text places special emphasis on the importance of alchemical knowledge.[104]

In the fictitious story about the Prince of Purpoole, the character referred to as the "Second Councillor" advises the Prince on the study of philosophy and the "conquest of the works of nature."[105] He describes how to acquire knowledge through the collecting of

[103] James Spedding, *The Letters and the Life of Francis Bacon. Including All His Occasional Works.* Vol. I (London: Longman, Green, Longman and Roberts, 1861), 327.

[104] Bacon's recommendations are further explored specifically in relation to Rudolf II's approach to knowledge production in Chapter Four of this dissertation, see pages 142-144.

[105] Francis Davison et al., "The Second Councellor Advising the Study of Philosophy," in *Gesta Grayorum: Or the History of the High and mighty Prince Henry Prince of Purpoole, Anno Domini, 1594*, ed. W.W. Greg (London: Oxford University Press, 1914), 34–35.

books, the establishment of gardens, laboratories and of cabinets.[106] The counsellor recommends that the king should "bend the Excellency of [his] Spirits to the searching out, inventing and discovering of all whatsoever is hid in secret in the World, that [his] excellency be not as a Lamp that shineth to others, and yet seeth not itself; but as the Eye of the World, that both carrieth and useth Light."[107] In other words the king should seek to become knowledgeable about nature. Bacon goes on to give examples of rulers who possessed great "wisdom of former Times," particularly the Persians, the Princes of Asia, the Ptolemies in Egypt, and the Sultan Suleiman.[108] The counsellor, or rather Bacon, states that the kingdoms that were the happiest were the ones "that had Rulers most addicted to Philosophy."[109] Addressing the Queen of England, Bacon illustrates the knowledge that is required of an ideal monarch, or the "four principal Works and Monuments" to achieve this ideal:

> First, The collecting of a most perfect and general Library, wherein whatsoever the Wit of Man hath heretofore committed to Books of worth, be they ancient or modern, printed or Manuscript, European or of the Other Parts, of one or other Language may be contributory to your Wisdom. Next a spacious wonderful Garden, wherein whatsoever Plant, the Sun of divers Climates, out of the Earth of

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[106] Francis Davison Henry Helmes and Francis Bacon, *Gesta Grayorum: or the History of the High and Mighty Prince Henry Prince of Purpoole, Anno Domini, 1594* ed. W.W. Greg (London: Oxford University Press, 1914). The *Gesta Grayorum* is an account of the Christmas revels performed at Gray's Inn between 12 December to 6 January 1595. The Gray's Inn was one of the four main Inns of Court (Elizabethan theaters) attended by sons of the most influential families of England where they were educated in the arts, humanities, and law, Paul Raffield, *Images and Cultures of Law in Early Modern England: Justice and Political Power, 1558-1660* (Cambridge: Cambridge University Press, 2004), 112. The Christmas Revels were a tradition of the Inns of Court performed by the students for their own entertainment, presided over by the Gray's Inn ruler, the Prince of Purpoole—a term that derives from the word 'Portpool,' the parish where the Gray's Inn was located, Margaret Knapp and Michal Kobialka, "Shakespeare and the Prince of Purpoole: The 1594 Production of the *Comedy of Errors* at Gray's Inn Hall," in *The Comedy of Errors: Critical Essays* (New York: Garland Publishers, 1997), 435.

[107] Davison et al., "The Second Councellor Advising the Study of Philosophy," 34.

[108] Ibid.

[109] Ibid.

> divers Mounds, either wild, or by the Culture of Man brought forth, may be, with that Care that appertaineth to the good prospering thereof, set and cherished. This garden to be built about with Rooms, to stable in all rare Beasts, and to cage in all rare Birds; with two Lakes adjoining, the one of fresh Water and the other of salt, for like variety of Fishes: And so you may have, in a small compass of Cabinet, wherein whatsoever the Hand of Man, by exquisite Art or Engine, hath made rare in Stuff, Form, or Motion, whatsoever Singularity, Chance and the Shufle of things hath produced, whatsoever nature hath wrought in things that want life, and may be kept, shall be sorted and included. The fourth, Such a Still-house so furnished with Mills, Instruments, Furnaces and Vessels, as may be a Palace fit for a Philosophers Stone. Thus when your excellency shall have added depth of Knowledge to the fineness of Spirits and greatness of your Power, then indeed shall you lay as Trismegistus; and then, when all other Miracles and Wonders shall cease, by reason that you shall have discovered their natural Causes, your self shall be left the only Miracle and Wonder of the World. [110]

The description of the house, furnished with an alchemical laboratory, a "Palace fit for the a Philosopher's Stone," in relation to the establishment of a library, a garden, a menagerie, and a collection is particularly noteworthy. The Philosopher's Stone was a legendary substance believed to magically turn base metals into gold. It was also believed that it held the solution to human existence and that whoever possessed it would obtain eternal life.[111] Overall, as this passage reveals, for Bacon wisdom is produced as a result of engagement with the material world, through the collecting and study of natural history and alchemy, and through the study of ancient and contemporary knowledge. In turn, this wisdom uncovers natural causes and allows one to acquire a thorough understanding of the world, gaining power, greatness, and even omniscience in the process.

As the three written works by Quiccheberg, Kaltermarckt, and Bacon demonstrate, the practice of collecting created opportunities for scholars to find a

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[110] Ibid.

[111] Peter H. Marshall, *The Philosopher's Stone: A Quest for the Secrets of Alchemy* (London: Macmillan, 2001).

subsidized and important place at courts, not only to gain employment, but also to promote intellectual knowledge as an important basis for the right to rule. The assembling and acquiring of knowledge through active engagement with the material world by aristocrats who had the means to assemble extensive collections, was an activity that promoted power, prestige, and the advancement of knowledge. The discussion of collecting in written works produced at different locations points to the ubiquitous interest and importance of this occupation. In terms of the utilitarian purpose of collecting, it was an activity that facilitated "the administering of state," as expressed by Quiccheberg, for status and the preserving of one's memory, as outlined by Kaltermarckt, and for demonstrative purposes of man's mastery over the world, as suggested by Bacon. Bacon's extension of the collecting program to include an alchemical laboratory where lower materials would be transformed into higher more precious ones also brings to mind the very distinctive early modern character of *Kunstkammer* artefacts, in which natural materials and processes are imitated and improved upon through artifice. Therefore, such artefacts—as exemplified by the allegorical painting on jasper-agate and its coat of arms of *commesso di pietre dure*—given between collectors who shared similar interests in the procurement, organization, and manipulation of things were very potent gifts that not only appealed to shared interests and tastes of the men who exchange them, but held the potential to transform relations between people and courts.

In what follows I address the tradition of gift giving—a tradition that is firmly rooted within the practice of collecting—between the Saxon Electoral Court and that of the imperial court in the decades leading up to Christian's reception of the two extravagant gifts with which I began.

A tradition of gift-giving

Christian's visit to Prague in 1607 was the first time he met Emperor Rudolf II face to face. However, in view of the Emperor's warm welcome of his Protestant neighbors, it is clear that an amiable relationship had previously been established. In fact, Rudolf II had already initiated a personal connection with Christian through an exchange of *Kunstkammer* objects in 1600-01, before the latter was even old enough to assume the Electorship, and seven years before they met in person in Prague.[112] Rudolf had then written to the sixteen year-old Christian stating that he had heard of his enthusiasm for paintings and other works of art and that he wished, therefore, to send him numerous pieces he had at his disposal "…in hopes of preserving and continuing the good and honest relations between the two houses of Austria and Saxony."[113] It seems that in return, possibly on the occasion of his accession to the Electorship in 1601, Christian presented to Rudolf thirteen pieces of turned ivory made by his court turner Georg Wecker, thus graciously offering a specialty of an art of his court to the Emperor.[114] Traditionally, and in spite of religious differences, as explained above, friendly

[112] Christian II's father, Christian I had died in 1591 and for the next ten years Friedrich Wilhelm I of Saxony-Weimar-Altenburg served as guardian and administrator of the Electorate until Christian II turned 18 on 23 September, 1601, Syndram, "Princely Diversions," 64.

[113] "Nachdem ich vernimb, das ihr liebt sich mit gemäht und sonst andern kunststücken delectieren, so hab ich nit unterlaszen wöllen, iro zu etwas erzaigung meiner an derselben tragenden freündlichen und genaigten affection etliche stuck, so ich hie bei der hand gehabt, zuzueschichen. Welch eure lieb, biss ich etwas bessres finde, für lieb nehmen und sich zu mir jeder zeit aller freundschaft versehen wöllen, wie ich dann nit zweifle, euer lieb auch ir angelegen sein laszen würdet, damit die alte vertreüliche und aufrechte correspondenz, so zwischen baiden heüsern Österreich und Sachszen jederzeit gewest, vies thails erhalten und continiert." Rudolf wrote this letter on January 10, 1600, as cited in Kaufmann, *Variations on the Imperial Theme*, 111.

[114] Syndram, "Princely Diversions," 65.

connections existed between the Catholic House of Austria and the Lutheran House of Wettin, which had been initiated between Elector August (the grandfather of Christian II) and Emperor Maximilian II (the father of Rudolf II) and maintained through gifts of *Kunstkammer* artefacts. Furthermore, the connection between Dresden and Prague was also strengthened due to an exchange of artists and engineers who travelled between the two courts.[115]

In 1552-53, August had spent one year at the courts of Vienna and Prague and had become closely acquainted with Maximilian and his younger brother, Archduke Ferdinand II.[116] Later, in 1566, Emperor Maximilian conferred the Electorship and the office of the Imperial High Marshall on Augustus, which secured the Electorship for the Albertines.[117] Friendly relations between the two courts were then maintained by both sides through the giving and exchange of works of art and scientific instruments that were added to their respective *Kunstkammern*.[118] Some of these gifts are described below.

In 1574, copies of the paintings of the *Four Seasons* by Giuseppe Arcimboldo (1526/27-1593) were given to Augustus of Saxony by Emperor Maximilian II during the

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[115] For example, in 1599 Georg Wecker installed a lathe for Rudolf, Ibid.

[116] Heinz-Werner Lewerken, "The Dresden Armory in the New Stable," in *Princely Splendor: The Dresden Court 1580-1620*, ed. Dirk Syndram and Antje Scherner (New York: Metropolitan Museum of Art, 2004), 138.

[117] Watanabe-O'Kelly, *Court Culture in Dresden*, 75. Traditionally, the Elector of Saxony, the Grand Marshall of the Holy Roman Empire, whose title was hereditary, was one of the two most important Electors. He and the Elector Palatine, vicars (*Reichvikare*), shared power if the Emperor was ever incapacitated, was under age, or died without leaving an heir. See Mehmet Sinan Birdal, "State formation in the Holy Roman Empire", in *The Holy Roman Empire and the Ottomans: From Global Imperial Power to Absolutist States* (London 2011), 86-116.

[118] Syndram, "Princely Diversions," 64; Thomas DaCosta Kaufmann, "Planeten im kaiserlichen Universum: Prag und die Kunst an den deutschen Fürstenhöfen zur Zeit Rudolfs II.," in *Hofkunst der Spätrenaissance: Braunschweig-Wolfenbüttel und das kaiserliche Prag um 1600* (Brunswick: Herzog Anton Ulrich-Museum Braunschweig, Kunstmuseum des Landes Niedersachsen, 1998), 9–19.

Elector's state visit to the imperial court then located in Vienna. A year prior, during a similar visit, the Elector had expressed great interest in Arcimboldo's composite heads, particularly the *Seasons* and the *Elements*—portraits that symbolized their subject through an arrangement of objects, animals, and plants gathered and arranged in such a manner that resembled a face. The series of paintings functioned as imperial allegories, alluding to eternal Habsburg reign and domination. As Kaufmann points out, in the versions given to the Elector, the arms of Meissen and Saxony on the shoulder of the personification of *Winter* take the place of the letter M (which in the original series stood for Maximilian). In this way the iconography of the paintings is transferred to Duke Augustus.[119] Arcimboldo's paintings of composite heads composed of natural and artificial elements were greatly admired and soon thereafter, Augustus purchased additional paintings.[120] In fact, Arcimboldo's work was so highly admired that eventually ten paintings by the artist, including drawings and studies of animals, were obtained for the Saxon *Kunstkammer*.[121]

In 1575 another gift from Maximilian II, this time to the Electress Anna, comprised of "*Ahn schönen kunstreichen Schreibetischen, Schreib Zeugenn Probier Geheusen, und andern Kestleinn*" (a beautiful [and] artfully wrought desk, writing materials, a still, and other little chests). It was decorated with silver, gilt, and coloured

[119] For a more in depth discussion see Kaufmann, "Representation, Replication, Reproduction," 13 and Ibid., "Arcimboldo and the Elector of Saxony," *Scambio Culturale Con Il Nemico Religioso. Italia e Sassonia attorno 1600*, ed. (Rome, 2007), 27-36.

[120] Kaufmann, "The Allegories and their Meaning," in *The Arcimboldo Effect: Transformations of the Face from the Sixteenth to the Twentieth Century* (Milan: Bompiani, 1987), 89–109; Ibid., "Caprices of Art and Nature: Arcimboldo and the Monstrous," in ed. E. Mai and J. Rees, *Kunstform Capriccio: von der Groteske zur Spieltheorie der Moderne* (Cologne: König, 1998), 35-51; Barbara Marx, "Wandering Objects," 223.

[121] Kaufmann, "Representation, Replication, Reproduction," 13.

inlay depicting the Emperors from Albrecht II (1397-1439) to Maximilian II and the seven virtues, thus alluding to Imperial succession through time sanctioned by virtue. It also included a chiming clock with seven planets and twelve drawers filled with various fine writing instruments.[122] Extravagantly crafted desks such as the one described here feature frequently as gifts among the nobility. For example, as I discuss in the Chapter to follow, *commesso di pietre dure* (or Florentine mosaic) tabletops and desks were often given as gifts by the Medici Grand dukes and by Rudolf after he established a *commesso* workshop at his court in Prague.

After succeeding his father Maximilian II on the imperial throne in 1581, Rudolf gave an especially valued gift to the Elector Augustus II: an emerald cluster containing sixteen uncut emeralds.[123] It came from Muzo in Columbia and had presumably been sent to Europe by Spanish conquistadors, and prior to being given to the Elector, had been sent as a gift to the imperial court by a Habsburg family members living in Spain.[124] The emerald cluster was a truly spectacular gift and would have been perceived as a wonder of nature. Furthermore, being given by Rudolf, a very enthusiastic collector of precious and semi-precious stones, the ore was held in extremely high esteem. Indeed, in the Dresden *Kunstkammer* the precious ore was placed in a cabinet that contained fifty-five other ore matrices, or handstones in their natural state, that had been found locally. When Christian I (Augustus' successor) took on the Electorship, the emerald cluster was moved

[122] Watanabe O'Kelly, *Court Culture in Dresden,* 75-6.

[123] Ibid., 76. Other gifts that Maximilian II gave to Elector Augustus and his son Prince Christian II, see Heinz-Werner Lewerken, "The Dresden Armory," 78. Also see G. Brückner, "Die zu Dresden im April 1575 zu Ehren des Kaisers Maximilian II. veranstalteten Ferstlichkeiten," in *Archiv für Sächsische Geschichte* 4 (1866): 240.

[124] Watanabe O'Kelly, *Court Culture in Dresden,* 76.

from the treasury to the *Kunstkammer*'s central space and placed on his father's drawing table. It was then declared a possession of the noble house of Wettin that could never be sold.[125] In this way the emerald cluster thus became an inalienable object of the House of Saxony. Today's presentation of the ore in the Grünes Gewölbe, in which a sculpture of a man representing a moor holds the ore on a platter, was a later transformation by Balthasar Permoser, commissioned by Elector Augustus the Strong (1670-1733) in 1724, who wished to exhibit this precious object in the new *Schatzkammer* museum. Clearly this particular gift was valued through several generations.[126]

Other frequent gifts from the imperial court included swords, rapiers, and daggers that were added to the extensive collection of arms and armour at the Dresden court. In 1562 King Maximilian II (then future emperor) gave Augustus a rapier garniture with enameled gold hilts, made by a Spanish goldsmith. This gift was to celebrate Maximilian's accession as King of the Romans during the imperial diet in Frankfurt.[127] Later in 1575, on the occasion of a visit to Dresden, Emperor Maximilian presented to the Elector Augustus and his son Christian I a set of enameled gold parade garniture, consisting of a dagger and a rapier.[128] Rudolf II too bequeathed gifts of weapons to Christian II in 1602.[129] Gifts of beautifully forged weapons participated in the tradition of gift exchange between the Dresden Electoral court and the imperial court and point to the

[125] Syndram, "Princely Diversions," 62.

[126] Syndram and Scherner, *Princely Splendor*, 302; Helmut Nickel, "The Graphic Sources for the Moor with the Emerald Cluster," *Metropolitan Museum Journal* 15 (1980), 203–210.

[127] See Syndram and Scherner, *Princely Splendor*, 301.

[128] Lewerken, "The Dresden Armory," 78.

[129] On January 1602 Rudolf sent an imperial legation to Dresden that delivered five Turkish prisoners, three "oriental" horses that were equipped with garniture, see Kappel, "Die Türkennot des Kaisers,"125–133.

diversity of things that were held in high esteem among princely collectors; they were added to the extensive collection of arms and armour.

Gifts also flowed in the opposite direction, although they are not as well documented. For example, sometime before 1600, a rolling-ball clock with an automaton in the shape of a tower was given to the Emperor Rudolf. The clock was worth 2400 Thalers, and was considered a masterpiece of artistic and technological accomplishments, coming equipped with highly advanced technical features and an organ movement. Its iconography alluded to the continuity of imperial majesty from antiquity to Rudolf II.[130] Saxony was well known for its technological expertise and production of clocks and automatons. Several clocks may be viewed today in the *Kunstkammer* collection in Vienna and the Grünes Gewolbe in Dresden.

The above-mentioned gifts that were given to the Saxon dukes were placed on display in the Dresden *Kunstkammer* where they facilitated an important demonstrative function. Due to their status as gifts from important individuals, most of the artefacts were kept in a room of their own, displayed in such a manner as to testify to their importance as originating from a particularly noteworthy donor.[131] In this way they would have augmented the status of the Saxon Dukes to visitors who could admire the fact that the Electors were shown such largesse by the Habsburg Emperors and other important political players of Europe.

The movement of gifts of things discussed above demonstrates that for nearly half a century the Saxon and imperial court established and sustained positive ties through an

[130] Ibid.

[131] Watanabe-O'Kelly, *Court Culture in Dresden*, 75, 99.

exchange of extravagant gifts.[132] Most of the objects that were given would have been either carefully chosen for their subsequent owners or were made specifically for them, often addressing the bequeathed directly through iconography. However, as I have been suggesting, the appeal of the given artefacts was ensured through their entanglement in the shared interests in the material world, as exemplified by the ubiquitous practice of collecting of things that displayed a virtuosic treatment of materials and their transformation.

The iconography of two *Kunstkammer* gifts

The gifts given over several decades between the Dresden and the imperial court in Prague functioned to establish and to promote connections over a long period of time, thereby paving the way for the relationship and the gift-giving that occurred when Christian II visited Emperor Rudolf II in 1607. Two of these objects—a painting on jasper-agate and the Saxon coat of arms of *commesso di pietre dure* and a bronze bust of Christian II fashioned after his actual likeness—are particularly noteworthy. They were both made specifically for the young Elector on the occasion of his visit to the imperial court in Prague, and performed the double function of demonstrating friendship and participating in diplomacy. Both of the gifts combine the subject matter, theme, and materials in a manner that flatters Christian and reminds him of the longstanding closeness between the house of Habsburg and the House of Wettin, while at the same time implying superiority of the Emperor. Their iconographic message exalts the Elector, aligning him with victory, peace, and loyalty to the Emperor. Their appeal is tied to their

[132] Syndram, "Princely Diversions," 64-5.

value as expertly crafted *Kunstkammer* artefacts made from valuable materials by famous artists at Rudolf's court.

In particular, the allegorical image of Christian painted in oil on jasper-agate may be interpreted as a message of peace from the imperial court to Dresden. Iconographically, and through the interplay between elements and gestures of its subject—such as the small statue that is raised triumphantly towards the sky by the figure of Minerva at whose feet lie Turkish spoils of war, Christian's outstretched hand that points towards her, and his gaze directed back at the observer—allude specifically to Christian's loyalty to the Emperor and illustrates the fact that Christian was instrumental in bringing about victory over the Turks, and thus contributed to peace in the empire. This particular picture also functions as a gesture of thanks on the part of Rudolf for Christian's aid in the war against the Turks, which had finally come to an end with a peace treaty in 1606.[133]

The second gift, the bronze bust of Christian functions in a similar manner. However, it is important to note that compositionally it also resembles a bust of Rudolf made in the same year by de Vries (Fig. 5). Rudolf's bust is half-length, whereas Christian's begins at the rib cage. The portrait bust of Rudolf also functions as a counterpart to a bust made by Leone Leoni in 1555 of Emperor Charles V (Rudolf's maternal grandfather), which Rudolf purchased in 1600 from the collection of Antoine Perrenot de Granvelle (1517-1586) (Fig. 6). Rudolf is portrayed akin to Charles V, as a

[133] Jutta Kappel, Ein "commesso in pietre dure" aus der Hofwerkstatt Kaiser Rudolfs II. zu Prag um 1600, *Dresdener Kunstblätter* 34 (1990): 104–109. Other oil paintings on stone by Hans von Aachen were purchased from the artist by Christian II during his time in Prague, as indicated by one of von Aachen's own personal invoices, where he notes that he had painted an Apocalypse on stone for the Elector, a work that is now lost, see Rudolf A. Peltzer, "Der Hofmaler Hans von Aachen, seine Schule und Zeit," *Jahrbuch der Kunsthistorischen Sammlungen des Allerhöchsten Kaiserhauses* 30 (1911/1912): 175n3.

heroic and triumphant leader, clad in ceremonial armour, with a sash draped diagonally across his left shoulder. Rudolf's armour is decorated with scrolling vines, a griffin, and a lion. Nude female figures are represented below each shoulder: on the left is a winged figure blowing a horn, symbolizing victorious peace, and on the right is Nike holding a palm branch and laurel wreath. The figural base that supports the portrait is composed of figures of Jupiter, Mercury, and an eagle. Mercury alludes to the Emperor's wisdom, and the griffin symbolizes both heaven and earth (its body allows it to move about in both worlds) alluding to the Emperor's universal rule. The goat indicates the Emperor's spiritual descent from Emperor Augustus and the ancient god Jupiter. This bust would have been seen in Rudolf's *Kunstkammer* alongside Leoni's similarly structured bust of Emperor Charles V. Whereas Charles is portrayed gazing wisely and calmly into the space in front of him, Rudolf seems more erect, jutting out his chin and gazing majestically into the distance. The copying of the bust of Charles V reflects the claim on the part of Rudolf II that he is to be compared with the greatest of his predecessors, Charles V.[134]

Comparing the bust of Christian directly to the bust of Rudolf, visual parallels may be noted. Both armour breastplates are decorated with scrolling vines, both bases are held up by allegorical figures, and both busts portray their sitter gazing confidently into the distance. Additionally, both portraits are distinguished by powerful, picturesque modeling. Being the near equal of the bust of Rudolf—a work that is itself based on the representation of the then most illustrious of the Habsburg Emperors (Charles V)—Rudolf honored Christian not only through the quality and material used to make the

[134] Lars Olof Larsson, "Bildhauerkunst und Plastik am Hofe Rudolfs II," in *Prag um 1600. Kunst und Kultur am Hofe Rudolfs II.* Vol. I (Freren: Luca Verlag, 1988), 133.

object but also through the type of depiction, suggesting that Christian should be measured with the greatest of Emperors. The beardless Christian is shown proud and regal, gazing victoriously into the distance.

One important detail on Christian's bust is especially striking. Around his neck, suspended on a ribbon, is a medallion with the depiction of the Emperor Rudolf (Fig. 7). It seems to echo the sash that the Emperor wears in his own portrait bust, draped diagonally across his chest. The portrait medallion is centrally located, framed by the wings of the two-headed Habsburg eagle, and accentuated by the clasping hands of the two female figures below. Recent examination of the object has demonstrated that great care was taken in the execution of the medallion, especially the attention dedicated to achieving intricate detail and the high degree of polish on the face.[135] This is in contrast to the rest of the bust, which is not equal in the quality of workmanship found in the bust of Rudolf. [136] The direct reference to the Emperor on the oval medallion is suggestive of an emblem of an order. Indeed, its position recalls the Order of the Golden Fleece worn around Rudolf's neck in his portrait bust, and further suggests that Christian was Rudolf's loyal supporter. It also alludes to the two regents' concord and support of each other, something the Emperor had been striving to achieve even before Christian had reached the age of majority, as explained above.

[135] Bassett et al., *The Craftsman Revealed*, 100.

[136] Ibid.,101.

A transformation of matter

Reverberating beneath the surface of these very different artefacts, beyond but also through iconographic analysis is the sensation of matter. Both gifts attempt to surpass nature in their attempt to perfect the material from which they are made, thus improving upon nature itself, something that is very much on par with the courtly pursuits and interests of the time, especially the art of alchemy, the imitator of nature *par excellence*.[137] According to Aristotle, art can function in two distinct ways: "the arts either, on the basis of Nature, carry things further (*epitelei*) than Nature can, or they imitate (*mimeitai*) Nature."[138] As William Newman observes, "this dichotomy allows the possibility of having two distinct types of art, one that perfects natural processes and brings them to a state of completion not found in nature itself and another that merely imitates nature without fundamentally altering it."[139] Each of the gifts given to Christian by the Emperor can be said to operate in the latter manner.

In the bust of Christian, nature is improved because it presents an idealized portrait of the Elector. The material from which the bust is made is perfected and refined through human intervention by the hands and tools of the artists who, through knowledge and familiarity with the material, molded it to present a purified image of the Elector. Christian is portrayed as victorious and confident, whereas in real life he was an obese alcoholic who nearly bankrupted Saxony's state finances and died at the age of twenty-

[137] Smith, *Business of* Alchemy, 7.

[138] Cited in William R. Newman, *Promethean Ambitions: Alchemy and the Quest to Perfect Nature* (Chicago: University of Chicago, 2004), 17.

[139] Ibid.,16.

eight in 1611.[140] Even more importantly, referencing the earlier busts of Rudolf and Charles, through repetition and reconfiguration, Christian's bust also reinforces the network of rulers.

In the second gift, which on one side pictures the coat of arms of the Saxony of *pietre dure*, nature is perfected and brought to a more complete and refined state through the cutting and polishing of stone, and through the addition of an ebony frame. In this stone inlay, circled by Bohemian garnets, the natural colours of semi-precious stone, cut into precise and fine shapes, are refined in order to create a lasting symbol of the Electorate of Saxony. Nature's stones are made to succumb to the tools and creative powers of the artist, thereby refining nature and bringing it to a more complete and cultivated state. The ebony frame accentuates the picture-like quality of the stone and brings it to a new state of refined importance. Finally (and especially), through the application of oil paint that interferes and seems to mix with the colours of the translucent jasper-agate stone and works to depict an imagined scene that exalts the Elector, nature is brought to the level of otherworldly allegory.

Both objects thus evince concepts of transformation and improvement of materials, ideas that are very much on par with the courtly pursuits of the period. As discussed above, during the late sixteenth and early seventeenth centuries, the significance of human art and engagement with the material world was given a new emphasis, and alchemy in particular became part of an official court philosophy. Its doctrine of transformation made itself manifest in other material practices, such as industry, commerce, religion and fine art. Its effects—transformation, refinement, and

[140] Syndram, *Princely Splendour*, 104.

purification—may be seen at work within the works of art themselves and in these gifts most particularly.

It is important to note that the bust of Rudolf, on which the bronze sculpture of Christian is based, provides a literal alchemical reference. According to Larsson, the representation of the lion and griffin on the lower section of Rudolf's armour may be interpreted as a reference to the *conjuntio mysterium* of alchemy, the union of the sun and the moon, which leads to perfect wisdom.[141] It thus suggests that the Emperor is the possessor and guardian of perfect wisdom. The *conjuntio*, symbolized by the griffin, refers to alignment or resolution of conflict between dualities and the lion symbolizes the sun. Various interpretations may be gleaned from this, one of which may be that through the pursuit of alchemy, which leads to wisdom, the many problems of the world may be resolved. By pursuing knowledge through alchemy, the most polymathic of fields that sought to refine base metals and convert them into gold, so too could human relationships be improved. The potential of alchemical knowledge is further suggested in the jasper-agate painting and the coat of arms of Saxony of *pietre dure*, as explained below.

In the painting on jasper-agate, nature, as we have seen, is transformed through the art of painting and creates a picture that is intended to ameliorate and nurture the friendly relationship between the two regents by emphasizing Christian's key role in the struggle against the Ottoman Turks. In this artefact, the making of art and its relation to the workings of nature is called into question, beckoning the observer to contemplate the artificiality of paint and its relation to the natural markings of the stone. The natural colours of the jasper-agate (reds, yellows, greens, and browns) provide the background,

[141] *Prag um 1600. Kunst und Kultur am Hofe Rudolfs II.*, (Freren: Luca Verlag, 1988), 149-50.

the marginal ornaments, and a guide for the metaphorical scene that is painted in oil. That is, the mélange of agate and jasper that forms nodules, striations, markings and stains of colours—features that are the result of heat and pressure, processes that take place in the depths of the earth—work in dialogue with the oil paint and with the iconographic theme of the picture. The overall scene, which presents nature and artifice in tandem, hinders our ability to differentiate between what is nature's creation and what is the artist's intervention, between what is stone and what is paint. This is especially the case in the area of the cloud that surrounds Nike as well as the foreground that presents the spoils of war. The irregular concentration of different colours has been appropriated to function as the backdrop for the painting, allowing the stone's natural tendencies to harmonize with the qualities of oil paint. As a result, our imagination leads us to interpret these areas as a landscape or sky that work to assist the narrative of the scene. The natural and colourful irregularities of the stone thus work to provide a rugged landscape, a slanted horizon line, a stone formation upon which the duke sits, a stormy sky at dawn and a seemingly blood stained ground—a colour that is naturally echoed throughout the stone (near the arm of the seated female figure) and artificially through paint (in the Elector's hat and stockings). Through the application of oil paint that simultaneously interferes yet harmonizes with the colours and textures of the translucent jasper-agate stone, and in particular through the continuous visual oscillation between the artificial and the natural, an image that we understand as alchemical is created—one that converts the art of nature.

In the case of the coat of arms of Saxony, the natural colours of semi-precious stone (mined in Bohemia), cut into precise and fine shapes, have also been refined in order to create a lasting representation of the Electorate of Saxony, encircled by garnets.

Nature's stones are cut and polished and made to succumb to the tools and creative powers of the artist. Interestingly, the Saxon coat of arms of inlaid polished stone of *commesso di pietra dure* was evidently perceived as more important than the painting on stone; in 1610, one year before the death of Christian II, the artefact as a whole was identified in the Dresden *Kunstkammer* inventory as "*das Grosse Kursächsiche Wappen*" (the great Electoral arms of Saxony), and does not make any mention of the allegory painted on jasper agate on the reverse.[142] It is possible that the coat of arms was perceived as the *recto* and the painting on jasper-agate would thus become the *verso*, and the object as a whole would be known by the main theme of the *recto*. However, it is also possible that the artistry of the picture was valued less than the stone coat of arms of Florentine mosaic. Perhaps the painting was too political in its propaganda of Habsburg politics with Christian II who is presented as working under the guise of Habsburg and Catholic interests. Nevertheless, I should add that the manner in which this double-sided artefact demands to be viewed and handled—to be flipped back and forth between *recto* and *verso*, between allegory and a symbol of Saxony—mirrors the conversion and oscillation between artifice and nature mentioned above.

Conclusion

The particular combination of nature and artifice, as embodied in the two gifts of *Kunstkammer* artefacts that were given to Christian II by the Emperor on the occasion of the Elector's visit to the imperial court in Prague in 1607, facilitated the making of connections. This Chapter puts forth a new understanding of these artefacts, in which

[142] Helmut Nickel, "The Great Pendant with the Arms of Saxony," *Metropolitan Museum Journal* 15 (1980), 190.

their role as gifts and their potential to transform relations is tied to the potency of their materials that works to activate the language of iconography.

The two gifts, made and tailored especially to the tastes of Christian II, addressed the Elector directly, speaking in an iconographic language that was readily understood by members of high society. The thematic aspect of these luxurious gifts—the message of peace, a reference to Christian's wisdom and devotion to the Emperor and to the harmony between them—imbued within the iconographical and material language of these objects, also functioned as a vehicle of self-representation on the part of Rudolf. Even though both objects formally represent Christian as the protagonist, the Emperor maintains center stage, not only because he is represented (directly and indirectly within the objects) but also because he is the giver of these artefacts. The gifts thus worked to legitimate the mutually supportive relationship between the two regents.

As I have argued, the transformative possibilities as represented through the metaphor of alchemy, which seek to improve and purify materials, are imbued within the objects that were given by Rudolf to Christian. In both gifts, natural materials are transformed and nature is challenged and improved upon through artificial means. Their physical nature thus coincides with contemporary material pursuits, which sought knowledge about the world in order to bring stability to the very volatile and chaotic world of the late sixteenth and early seventeenth centuries in central Europe. As I have argued, the language of iconography of the *Kunstkammer* gifts worked to legitimate the mutually supportive relationship between the Elector and his Emperor. However it was also the transformative possibilities of materials, which reverberated through and with the meanings of these works of art that activated their potential as gifts. Like alchemy, that

seeks to transform and refine materials, this potency is materialized in the effect on relationships between the Electorate of Saxony and the imperial court through time and across generations.

The power of the *Kunstkammer* gifts was not limited to their iconography: the people giving and receiving the artefacts would have also apprehended what is shown through the alteration of matter and the excess of materiality that gives that iconography its power. This transformation of matter is something that escapes representation and is not made apparent merely though craftsmanship but comes from the transformed material both to animate and to activate the iconographic language. In this way, the agency of the gifts within social and material relations is made manifest.

Chapter Three

Extracting and Committing Stone: A *Commesso di Pietre Dure* Gift and New Artistic Practices

Introduction: a timely gift

Writing in 1589 to Doge Pasquale Cicogna, the Venetian ambassador Vincenzo Gradenigo reports that a gift of a *commesso di pietre dure* tabletop had arrived at the imperial court in Prague from the Grand Duke Ferdinando de' Medici.[143] This *commesso* tabletop, inlaid with perfectly cut and fitted pieces of polished alabaster, rock crystal, lapis lazuli, and other stones, all arranged into elaborate geometric designs, was given to the Emperor Rudolf II as a *bomboniera* (a wedding favour) celebrating Ferdinando's grand marriage to Christina of Lorraine, the favourite granddaughter of Catherine de' Medici, the Queen of France.[144] In his report, Gradenigo describes the work as "a table made of crystals and other stones, of admirable and exceptional workmanship and great value…" He then adds that the tabletop was "very much to the liking of his imperial majesty, who addressed the ambassador [the one who delivered it] in the most affectionate terms, concluding that he accepted the gift with great pleasure, since it was sent to his majesty in order that he have something by which to remember the marriage of

[143] Hans von Voltelini, "Urkunden und Regesten aus dem k. u. k. Haus-, Hof- und Staats-Archiv in Wien," *Jahrbuch der Kunsthistorischen Sammlungen des Allerhöchstein Kaiserhauses* 13, no. 2 (1892): 143. Also cited in Erwin Neumann, "Florentiner Mosaik aus Prag," *Jahrbuch der Kunsthistorischen Sammlungen des Allerhöchsten Kaiserhauses* 53 (1957): 167; Annamaria Giusti, "The Prague Manufactory and Pietre Dure in the German Lands," in *Pietre Dure: Hardstone in Furniture and Decorations* (Philip Wilson Publishers Ltd., 2003), 137.

[144] Giusti, "Prague Manufactory," 137.

his highness [Ferdinando de' Medici]."[145] The gift of the tabletop, an extravagant gift of hard stone that Rudolf II admired immediately should also be understood as a political gesture intended to placate the Emperor of the Holy Roman Empire who would have preferred Ferdinando to take a Habsburg princess as his bride, as discussed below.

Little is known about this now lost tabletop made in the early Florentine *commesso* technique that relied mainly on geometric designs.[146] Presumably a metal base was added to it upon its arrival in Prague and according to an inventory of Rudolf's *Kunstkammer* taken in 1619, the table was placed in the "summer room" of the collection.[147] Within ten years of having received this gift, Rudolf not only commissioned another much grander and more expensive tabletop from the Florentine Galeria dei Lavori, he also brought Florentine artists to Prague in order to establish his own *commesso* workshop at the imperial court. In Prague the *commesso* technique was then transformed to depict idealized landscapes.

This Chapter centers on the transformation from raw stone into an image of a landscape, addressing the interrelated social and material factors that made this conversion possible. Ferdinando's gift of the initial *commesso* tabletop was a politically motivated act that functioned as an ideal gift because of Rudolf's great admiration and

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[145] Ibid.

[146] Rudolf Distelberger, "The Castrucci and the Miseroni: Prague, Florence, Milan," in *Art of the Royal Court: Treasures in Pietre Dure from the Palaces of Europe* ed. Wolfram Koeppe (New York: The Metropolitan Museum of Art, 2008), 29.

[147] Morávek, *Nově objevený inventář*, vi, note 13. According to Zimmerman, in the inventory of Rudolf's collection taken in 1621 the tabletop is described as: "Igar statlicher schöner schreibtisch, auswendig viereckicht, inwendig seckicht, von vielerlei künstlichen stücken, edlen gestein und gold geziert." Zimmerman adds that in 1631 it was brought to Vienna by the king, see Heinrich Zimmerman, "Das Inventar der Prager Schatz und *Kunstkammer* vom 6. Dezembre 1621" *Jahrbuch der kunsthistorischen Sammlungen des allerhöchsten Kaiserhauses* II (1905), 27, no. 334.

interest in the possibilities of stone as an artistic material. As shall be discussed in detail, this gift and Rudolf's predilection for stone, facilitated the establishment of a *commesso di pietre dure* workshop in Prague—an artistic milieu where landscape painting was actively pursued by Netherlandish artists. In what follows I examine the material reverberations of the initial gift of a tabletop from Ferdinando that over a short period of time functioned to bring an artistic technology from one center to another, producing something entirely new in the process—landscapes created from *commesso di pietre dure*.

The giving of extravagant gifts on the part of the Medici Grand Dukes to the Holy Roman Emperor was not a rare occurrence. For instance, in 1585 Francesco de' Medici sent Rudolf a gift of a gilded bronze compass designed by Bernardo Buontalenti.[148] However, because of the great value allotted to semi-precious stones, along with the time and skill required to make a *commesso* work, the gift of the tabletop was a much grander gesture. Rudolf was already a great admirer of the art of *commesso di pietra dura*, prior to Ferdinando's gift. Only four years before the arrival of the tabletop Rudolf had attempted to lure a *commesso* master to his court, known as Il Franciosino (Jean Ménard, 1525-1582), a Roman specialist of French origin whose talents were desired by several high ranking patrons, including the former Grand Duke, Cardinal Giovanni Ricci, Francesco de' Medici, and Catherine de' Medici, the queen of France.[149] It is likely that

[148] As Barbara Marx describes, this compass was identical to the one produced for the Grand Ducal *Guardaroba*, "Medici Gifts to the Court of Dresden," *Studies in the Decorative Arts* 15, no. 1 (2007): 46–82.

[149] The Emperor then wrote to his ambassador in Rome, Friedrich von Madruzz, requesting that a *pietre dure* master be brought to Prague so that from the gemstones that he had been collecting "…could be made a beautiful table top and all kinds of other things…" ("…*schone Tischblatt und allerlai andere Sachen, so aus solchen Edelstein konnten gemacht warden*…"), cited in C. Willemijn Fock, "Pietre Dure Work at the Court of Prague and Florence: Some Relations," in *Prag um 1600. Beiträge zur Kunst und Kultur am Hofe*

Ferdinando de' Medici was aware of the Emperor's tastes for *commesso* art, including his recent attempts at securing the services of one of the most famous *commessi* masters. In an era in which diplomatic and familial relations were maintained through an exchange of gifts often made and chosen with the recipient's preferences and tastes in mind, a gift of a *pietre dure* table top for an enthusiastic collector of artefacts of precious and semiprecious stones like Rudolf II was especially well suited.

Commesso di pietra dura, which means "'committed' in hard stone"—also known as *mosaico fiorentino*—is a technique that developed in Florence. It has roots in the antique and medieval technology of *opus sectile*, a practice that used polished and trimmed pieces of marble (at times also mother of pearl and glass) arranged into complex designs on floors and cladding for walls.[150] In the fifteenth century many ancient examples were rediscovered such as the palimpsest on walls of the Basilica of Junius Bassus dating to the fourth century CE. The technique had continued to be used for church interiors—particularly in Byzantium and Rome throughout the Middle Ages—and it was in Rome that a new interest on the part of patrons transformed the technique of *opus sectile* into a practice for tabletop decoration during the sixteenth century.[151] The

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Rudolfs II. ed. Eliška Fučíková (Luca: Verlag Freren, 1988), 53. Francesco de'Medici requested Jean Ménard's services as early as 1563; however, the artist chose to work for Catherine de' Medici in France and died there in 1582. Rudolf was not aware of this when he enquired about him in 1585, see Neumann, "Florentiner Mosaik," 166-7; Distelberger, "Castrucci and Miseroni," 29; Ottobrina Voccoli, *La Rinascita Dell'arte Musiva in Epoca Moderna in Europa. La Tradizione del Mosaico in Italia, in Spagna e in Inghilterra* (Phd Diss., 2009), 46.

[150] See Pliny the Elder, *The Natural History of Pliny,* trans. John Bostock and H. T. Riley (London: Bohn's Classical Library, 1855-57), 36:60, 36:64. As Giusti explains, terms such as *lavori di Firenze*, *mocaico fiorentino, opera di Firenze* began to appear in seventeenth century documents. At times the same term was used whether or not the artefact in question was made in Florence or elsewhere, see Giusti, "The Grand Ducal Manufactory of Florence" in *Pietre Dure: Hardstone in Furniture and Decorations* (London: Philip Wilson Publishers Ltd, 1992), 35n2.

[151] See for example Marilda de Nuccio and Lucrezia Ungaro, eds. *I marmi colorati della Roma imperial* (Venice, Rome: Mercati di Traiano, 2002).

early designs were architectural in nature, typically based on a central shape around which exploded decorative geometrical motifs. A famous example is the *Farnese Table* made for the Cardinal Alessandro Farnesse by the above mentioned Il Franciosino, who became renowned for his skill and typology of tables that boast complex non-figural compositions of polychrome marble.[152] However, by the middle of the sixteenth century, Florence became an important centre for the production of hard stone inlay where the technique developed using mainly semi-precious and precious stones fitted into elaborate figural and non-figural designs emphasizing the natural luminosity and aesthetic potential of its material. Florentine mosaic became especially famous under the patronage of the Medici grand dukes, particularly Cosimo I, Francesco I, and Ferdinando. In order to facilitate *commesso di pietre dure* decoration of the Medici Mausoleum in the Capella dei Principi at San Lorenzo, in 1588 Ferdinando united the Grand Ducal workshops located at the Casino di San Marco into the first state-run workshop at the Uffizi, the aforementioned Galleria dei Lavori.[153]

As a result of the circulation of *commesso* artwork in the form of gifts, commissions, and the migration of artists—who were experts in the technique and who came to work at various courts at the behest of powerful patrons such as Rudolf II—Florentine mosaic began to develop beyond the strict geometrical patterning, becoming famous all over Europe in the process. As this Chapter highlights, due to the movement of artworks and artists the spread of the *commesso* technique into new courtly

[152] Giusti, "Inlay and Florentine Mosaics: The New Art of Pietre Dure," in *Art of the Royal Court: Treasures in Pietre Dure from the Palaces of Europe* (New York: Metropolitan Museum of Art, 2008), 15.

[153] This is a project that took over four centuries to complete, Ibid.

environments with particular artistic tastes and practices resulted in new forms and techniques.

Artefacts made of hard stone were ostentatious gifts. This is because of the symbolic association of stones, their medicinal and aesthetic properties, and the expertise required to turn them into works of art. In many cases the value of a *pietre dure* work far exceeded the price of artwork by even the most famous masters. For example, the tabletop with which I began was valued at 5,000 Gulden in 1619.[154] In comparison, the famous bronze bust of Rudolf II by Adrien de Vries discussed in the second Chapter of this dissertation was valued at 800 Gulden, a small "lion skin" vessel in smoky quartz was valued at 600 Gulden, and a large plate of jasper at 3,000 Gulden.[155] These values point to the fact that the expense, time, effort, and expertise required to make a *commesso* work meant that these artefacts were usually reserved as gifts for only very important people; their "ostentatious expression of princely wealth," as so aptly describes them, thus made them particularly appropriate gifts within courtly contexts.[156]

Rudolf II was one among many illustrious recipients of gifts of *commessi di pietre dure* from the Grand Dukes of Florence.[157] Eager to showcase examples of Florentine artistic skill in the hard stone technique as produced in the newly established Galleria dei

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[154] See Morávek, *Nově objevený inventář*, 12. Note that the currency used by Morávek, "kop" in Czech, or "Schock" in German, equals 60 Groschen. See also Distelberger, "Castrucci and Miseroni," 29.

[155] Ibid.

[156] Ibid.

[157] As Giusti explains, the Medici dynasty practiced a generous public relations policy that involved the giving of presents "that aimed to win prestige for the Grand Duchy of Tuscany among other European potentates through the rarity and quality of its artistic offerings," in which porcelain was a particularly popular gift, see Giusti "The Origins and Splendors of the Grand-Ducal Pietre Dure Workshops," in *The Medici, Michelangelo, and the Art of Late Renaissance Florence* (New Haven and London: Yale University Press, 2002), 105.

Lavori, Philip II King of Spain, also became a recipient of a Florentine *pietre dure* tabletop, sent to him by Francesco de' Medici shortly before the latter's death in 1587.[158] Another gift, a *commesso* portrait of the French King Henri IV, was given by Ferdinando de' Medici in 1600 on the occasion of the sitter's marriage to his niece, Maria de' Medici.[159] Another portrait in the hard stone technique, this time of Pope Urban VIII, was made and sent to the Pope as a diplomatic gift in 1601 by Ferdinando.[160]

Ferdinando had a lot to gain by bequeathing such an extravagant and expensive gift as the *commesso* tabletop to the Holy Roman Emperor; Rudolf II was in effect the nominal feudal overlord to the Tuscan Grand Dukes. In order to maintain strong ties between the Medici and the Spanish Habsburgs (a complex history that is beyond the scope of the current Chapter), in 1557 Cosimo I de' Medici, Ferdinando's father, formally agreed that his sons would only contract marriages with stipulated agreement by the Spanish/Habsburg crown.[161] In choosing to marry Christine of Lorraine (the granddaughter of Catherine de' Medici, Queen of France), Ferdinando singlehandedly

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[158] Neumann, "Florentiner Mosaik," 165.

[159] Peter Fusco and Catherine Hess, "A Rediscovered 'Commesso' Portrait," *The Burlington Magazine* 136 (1994): 69. As the authors explain, this *commesso* portrait may have been a nuptial gift for Henri IV. This *commesso* portrait is currently lost but its preparatory painting, a portrait of Henri IV of France by Santi di Tito may be seen in Florence at the Museo dell' Opificio delle Pietre Dure, Annamaria Giusti, "The Gobelins and Pietre Dure in France" in *Pietre Dure: Hardstone in Furniture and Decorations* (London: Philip Wilson Publishers Ltd, 1992), 196-7.

[160] Both portraits were made by Romolo di Francesco Derrucci del Tadda (d. 1621), also called Francesco Ferrucci, one of the first specialists in the art of *commesso di pietre dure*. The portrait of King Henry IV was made by Santi di Tito. According to Giusti, when the Galleria dei Lavori was founded in 1588, Ferdinando I requested that experimentation be undertaken in the *commesso* technique in the area of portraiture. In a letter to his ambassador in Rome, Ferdinando described this art of *commesso* portraiture as his invention. The first portrait to be made in *pietre dure* was that of Cosimi I de' Medici, currently at the Muse dell'Pificio delle Pietre Dure, see Giusti, *Art of the Royal Court,* 148-50.

[161] *Cedula del Duque de Florencia en que promote de casar sus hijos a satisfy.on de Su M.*d' (MP 4919, fol. 361); dated 4th July 1557, as cited in Edward L. Goldberg, "Artistic Relations Between the Medici and the Spanish Courts, 1587-1621, *Burlington* Magazine 138, no. 1115 (February 1996): 105n3.

asserted independence from Spain and the Holy Roman Empire, strengthened political ties with France, and blatantly disregarded the wishes of both Philip II and Rudolf II that he marry a Habsburg archduchess, as his brother Francesco had done.[162] Therefore, the need for a truly impressive gift on the occasion of Ferdinando's marriage to the French princess, Christine of Lorraine, was much more pressing and called for a gift that would repair a potentially damaged relationship with the Emperor.[163] Considering the urgency required to ensure that the Emperor had not taken offence to the Grand Duke's refusal to marry a Habsburg representative, the fact that Emperor Rudolf II received the gift with pleasure must have been of considerable relief to Ferdinando and should not be underestimated.

There was still more to be gained by the Grand Duke from a successful gift to the Emperor. Having just recently consolidated the many workshops at the Casino di San Marco into the state-run Galleria dei Lavori in 1588, the giving of a sumptuous sample of a Florentine *commesso* work produced for such worthy recipient as the Emperor was well calculated. Not only would Ferdinando satisfy the interests and wants of the most illustrious collector of Europe, and hopefully repair any negative feelings that may have existed on the part of the Emperor, the gift of the tabletop would establish the prestige of Florentine artistic wealth and the splendours of Florentine *commesso* artistry. Since as early as the middle of the sixteenth century the Austrian Habsburgs were clients of the

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[162] See Goldberg, "Artistic relations," 105, 108-9. Also see Katherine M. Poole, *The Medici Grand Dukes and the Art of Conquest: Ruling Identity and the Formation of a Tuscan Empire, 1537-1609* (PhD diss., The State University of New Jersey, 2007), 11.

[163] For a discussion of the intricacies of the complex relationship between the Medici and the Holy Roman Emperors, see Furio Diaz, *Il Graducato di Toscana: I Medici* (Turin: UTET, 1987), 188-191, as cited in Poole's dissertation,

Milanese workshops of the Miseroni brothers, who were well known experts in hard stone carving and stone inlay, it would not be unreasonable for the Grand Duke to wish to entice the interests of the Emperor in the Galleria dei Lavori in Florence away from the Milan workshop. In this way the Florentine workshop could take over imperial commissions, which would in turn spread the fame of the new state-run workshop.[164]

Scholarship that addresses landscape *commessi* in Prague is not abundant. The inaugural study by Erwin Neumann carried out in 1957 traced a number of landscape *commessi* held by the Kunsthistorisches Museum in Vienna to the workshop in Prague before and shortly after the year 1600.[165] Since then there have been a few studies that have developed Neumann's initial contribution further, particularly in the area of attribution and dating of *commessi* works and the development of styles. Annamaria Giusti has produced several catalogues on *commessi di pietre dure*, which also trace the development of the art form in antique Rome through to the eighteenth century.[166] While Giusti recognizes the importance of the spread of the art form beyond the borders of Italy, the development of landscape *commessi* is seen in isolation and not as a result of its translation into Prague. Conversely, Beket Bukovinská and Rudolf Distelberger both attribute the landscape *commessi* art form to the creative energies that collided at the court of Rudolf II in Prague.[167] Bukovinská has also drawn attention to the exchange

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[164] Giusti, "Prague Manufactory," 136.

[165] Neumann, "Florentiner Mosaik " 157–202; Ibid., "Notes on a Florentine Mosaic," *The Connoisseur* (November 1957): 176.

[166] Annamaria Giusti, *Pietre Dure: Hardstone in Furniture and Decorations* (London: Philip Wilson Publishers Ltd., 2003); Ibid., *Splendori di pietre dure: l'arte di corte nella Firenze dei granduchi* (Firenze: Giunti, 1988); Ibid., *L'arte delle pietre dure: da Firenze all'Europa* (Firenze: Le letterre, 2005).

[167] Distelberger, "Miseroni and Castrucci," 28–39; Ibid., "Thoughts on Rudolfine Art in the 'Court Workshops' in Prague," in *Rudolf II and Prague*, 189–98; Beket Bukovinská, "Florenz - Prag oder Prag -

between Florence and Prague and the concomitant development of a "Prague" style of *commesso*. While the previous contributions have made important strides in laying the groundwork for research pertaining to *commessi di pietre dure* and its elaboration in Prague, my input focuses upon the material potential of a gift of this art form and its resonances within specific sociohistorical networks. In this way I draw attention to the important interplay between the social and political practice of diplomatic gift-giving and the material practice of hard stone inlay.

While the tabletop that was sent to Rudolf by Ferdinando de' Medici is now lost, its story does not end with its fiery destruction in 1731. Its resonance as a particularly potent gift had lasting effects. As discussed below, much of the tabletop's effect came from its great appeal to Rudolf, who nurtured an intense interest in stone's transformative and aesthetic possibilities and who went to significant lengths to mine jasper-agates, found in great abundance in Bohemian territory. The gift also incited the commission of another grander *commesso* tabletop ordered by Rudolf for which he assumed all expense and supplied Bohemian stones. During the first few years of the tabletop's making, sometime around 1592, Rudolf also secured the services of Cosimo Castrucci to head the *commesso* workshop at the imperial court in Prague. Finally, in the uniquely creative milieu of Rudolf's court, it can be said that the potency of the initial gift and the constellation of factors outlined above contributed to the inauguration of the *commesso* landscape, a genre that was practiced by artists in the medium of paint at the Prague court and was also collected by Rudolf II.

Florenz?," *Umění* 45 (1997): 161–70; Ibid., "Další florentské mosaiky z Prahy," *Umění* 20 (1972): 363–370.

In this Chapter I argue that the transformative potential of the gift of the *commesso* tabletop is located within the particular material qualities inherent to semi-precious Bohemian stones, described by contemporaries to naturally picture images of landscapes. In order to demonstrate how the materiality of Bohemian stones resulted in the development of a new pictorial genre in an existing medium, I first situate the appeal of collecting and manipulating of stones by rulers in relation to the material's associations and traditional virtues, as addressed by the contemporary mineralogist and physician at Rudolf's court, Anselmus Boetius de Boodt (c.1550-1632). Rudolf's passion for gems and semi-precious stones is then addressed in relation to his stone acquisition activities—the sheer amount of stones and stone artefacts in his collections, including their value as established by an inventory taken seven years after the Emperor's death. The section that follows focuses upon specific *Kunstkammer* artefacts that were created by the glyptic workshop run by the Miseroni family of hardstone artists in Prague and addresses Rudolf's interest in material transformation of stone. I then discuss the tabletop made of Bohemian stones that Rudolf had commissioned in Florence and its contemporary descriptions. Finally, the development of the landscape *commesso* within the production of Cosimo Castrucci is situated at the Prague court where landscape art was being practiced by Rudolf's court artists, Pieter Stevens (ca. 1567-after 1624) and Roelandt Savery (1576-1639). I argue that the development of the *commesso* landscape should be seen in relation to the aesthetic, natural, and transformative potential of Bohemian stones as worked upon by glyptic artists in the particular environment of the imperial court. Compositionally and in terms of subject matter, the transformation of stone into landscape *commessi* mimicked the pictures being produced by landscape artists, but it

also pushed against the boundaries of both the stone medium and landscape painting. The Chapter concludes with discussion that emphasizes the association between the possibilities and creative potentials of stone, and the magic of the gift that activated the *commesso* developments in Prague.

Stones and princes

Emperor Rudolf II's collection of stone and the artistic pursuits that relied on the medium are connected to its symbolic, material, and transformative properties—as material found in nature that could be manipulated by creative and technological abilities of the artist. This interest was tied both to the Emperor's tastes and the pursuit of knowledge as practiced at the imperial court, but also to Bohemia's own imperial past. Emperor Rudolf II's fourteenth-century predecessor, Charles IV of Bohemia and Holy Roman Emperor (1346-1378) was an important proponent of the arts in Prague. During his reign he commissioned several important architectural and artistic projects. He too engaged the material possibilities of stone, using agates, jaspers, and amethysts to incrust the walls of the Holy Cross Chapel and the Chapel of St. Catherine, both at Karlštejn Castle, and the walls of the Wenceslas Chapel in St. Vitus' Cathedral.[168] Rudolf saw himself cast in the role of renewing Prague's Golden Age as it had been under Charles IV and the incorporation of hardstone workshops must be seen as part of this enterprise. Furthermore, the use of Bohemian stones to construct the second tabletop in Florence

[168] Jaroslav Petrů, "Notes on Mystical Technology," in *Court Chapels. Proceedings from the International Symposium, Convent of St. Agnes of Bohemia, 23.0-25.9 1998.* ed. Jiří Fajt (Prague: National Gallery of Prague, 1998), 33; Z. Bouše and J. Myslivec, "Sacralní prostory na Karlštejně," *Umění* XIX (1971): 280-93.

should also be seen as an act of promotion of the seat of Emperor Rudolf's dominion, a territory that was naturally blessed with the riches of semi-precious stones.

Rudolf's extensive mining and accumulation of Bohemian stone, including its shipment to Florence where it was used to construct the second *commesso* tabletop, points to Rudolf's interest in stones and gems, something that was connected to a rich tradition that granted stones symbolic properties and special powers. Commenting on the symbolism of stones in the sixteenth century, Giorgio Vasari celebrates their durable and hard qualities. He states,

> "Hardstones can ... best preserve antiquity and memory as one has seen in [work of] porphyry, jasper, and in cameos and in other types of very hard stones which ... endure the pounding of water and wind and other mishaps of chance and time and that can be said as well of our Duke [Francesco I de' Medici] who, because of the constancy and virtue of his soul, can endure opposition to his governing and resolve with temperance all dangerous misfortunes."[169]

Vasari associates the preservation of memory and with strength in the face of opposition with stones' hardness and durability, qualities that made stone the ideal medium through which to propagate Medici grandeur. The capacity of stone to convey such attributes can best be seen in the Medici mausoleum, the Capella dei Principi at San Lorenzo—a chapel entirely lined with *commesso di pietre dure*. However, all throughout Christian history, gems and semi-precious stones have been associated with special qualities and virtues. In the Middle Ages, stones embodied a symbolic spiritual character and were associated

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[169] Vasari, *Ragionamenti del sig. cavaliere Vasari pittore et architetto Aretino sopra le invenzioni de lui dipinte in Firenze nel Paalazzzo di loro Altezze Serenissime, Florence* [1588], 26, reprinted in *Le opera di Girogio Vasari*, ed. G. Milanese, Vol. VIII (Florence, 1906), 39, as cited in Fusgo and Hess, "A rediscovered *commesso* portrait," 68. Vasari worked for Cosimo I and often travelled to Rome to investigate their uses of hard stones. By 1557 he had started to make tables for the Florentine aristocracy, see Giusti, *Pietre Dure,* "The Rebirth of Roman Inlay in the Roman Renaissance," in *The Art of Semiprecious Stonework* (London: Thames & Hudson Ltd., 2005), 28. See also Suzanne B. Butters, *The Triumph of Vulcan: Sculptors' Tools, Porphyry, and the Prince in Ducal Florence* (Florence: Olschki, 1996). See also Fabio Barry, *Painting in Stone: The Symbolism of Colored Marbles in the Visual Arts and Literature from Antiquity until the Enlightenment* (Phd Dissertation: Columbia University, 2011).

with the New Jerusalem, as described in John's Revelations.[170] Medieval lapidaries also addressed symbolic virtues and properties of stone and minerals based on the classical tradition as established by Pliny, Solinus, and Dioscorides. Medieval authors, such as Isidore of Seville, Marbode the bishop of Rennes emphasized the medicinal value of stones and minerals. Stones were also associated with astrological phenomena, as in Albertus Magnus' *De mineralibus*, a work that laid the foundations of late medieval alchemy and magic.[171]

In his book *Gemmarum et lapidum historia* (1609, Hannover) Anselmus Boetius de Boodt, a mineralogist and physician at the imperial court in Prague, promotes the usefulness of stones for rulers.[172] He writes: "…rulers above all require things that they can use in order to embellish themselves with ornament, and things that will increase their authority so that they can better rule, and with the help of their majesty they can easily lead people to obedience."[173] In other words, beautiful stones used as ornament make monarchs more efficacious rulers. The above statement is then followed by an account of various rulers of antiquity who used gems to embellish their majesty and

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[170] *"*[T]he *holy city, new Jerusalem coming down from God out of heaven…having the glory of God, and her light like a most precious stone, even like a jasper clear as crystal…and the city was pure gold, like clear glass…whose foundations were garnished with all manner of gems: jasper, sapphire, chalcedony, emerald, sardonyx, sardius, chrysolite, beryl, topaz, chrysoprase, jacinth, amethyst…"* Book of Revelation 21:2-25. On related uses see L. Mitchell, "Believing is Seeing: The Natural Image in Late Antiquity," in *Architecture and Interpretation: Studies in Honour of Eric Fernie*, ed. Jill Franklin, T.A. Heslop, and Christine Stevenson (Woodbridge, UK: Boydell Press, 2012.), 16–41.

[171] Roberta Gilchrist, "Medieval Lives: People and Things," in *Archaeology and the Life Course* (Woodbridge: Boydell Press, 2012), 247.

[172] Anselmus Boetius de Boodt, *Anselmi Boetii de Boodt Gemmarum et lapidum historia qua non solum ortus, natura, vis & precium, sed etiam modus quo exiis, olea, salia, tincturæ, essentiæ, arcana & magisteria arte chymica confici possint, ostenditur: opus principibu, medicis, chymicis, physicis, ae liberalioribus ingenius utilissimum* (Hanoviae: Moarnius, 1609).

[173] De Boodt, *Gemmarum et Lapidum,* 6. I thank Ivo Purš for his assistance with the Latin translation of De Boodt's text.

dignity; for de Boodt the more powerful and important ones desired more gems and precious stones. De Boodt then goes on to say that just as the Emperor surpasses all of these rulers in dignity, grandeur, talent and multifaceted knowledge of all things, the Emperor also surpasses them in his appetite for gems. De Boodt is directly referencing Rudolf's actual collection of precious and semi-precious stones and artefacts made from them, which indeed was significant, as discussed below.

In order to meet his own demand for stones, shortly after moving the imperial court to Prague in 1583, Rudolf mobilized resources in the 1580s, which involved extensive mining in Bohemia, a territory that was rich in precious and semi-precious stones, particularly jasper, chalcedony, agate, amethyst, and garnet.[174] Eager to harvest as much material as possible, Rudolf also issued patents that decreed that all stones found in his territories be sent directly to his court in Prague. He also employed prospectors who surveyed areas in North Bohemia, Silesia, Baden-Württemberg, and the Palatine.[175] Furthermore, Rudolf obtained stones through agents at the Spanish court, such as Hans Khevenhüller, who frequently tracked down pearls and precious stones for him, particularly in marketplaces in Lisbon and Seville.[176]

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[174] In the mid seventeenth century amethysts were considered as valuable as diamonds and they continued to fetch a high price until the nineteenth century when abundant supply was located in Brazil in the state of Minas Gerais, Sydney H. Ball, "A Historical Study of Precious Stone Valuation Prices," *Society of Economic Geologists* 30 (1935): 633.

[175] Beket Bukovinská, "The Known and Unknown *Kunstkammer* of Rudolf II," in *Collection, Laboratory, Theater: Scenes of Knowledge in the 17th Century*, ed. H. Schramm, L. Schwarte, and J. Lazardzig (Berlin: Walter de Gruyter, 2005), 218-19; Ibid., "Několik poznámek k méně známým zájmům Petra Voka z Rožmberka," in *Opera Historica Vol. 3*, 1993, 279–82; Ibid., "Die Kunst- und Schatzkammer Rudolfs II," 59-62; Ibid., "Wer war Johann Rabenhaupt? Unbeachtete Aspekte in den Beziehungen zwischen Prag und Südwestdeutschalnd," in *Rudolf II, Prague and the World*, ed. Lubomír Konečný et al. (Prague: Artefactum, 1998) 89-94.

[176] Pérez de Tudela and Gschwend, "Luxury Good," 20.

Gifts were another important source of precious and semi-precious stones. It should be mentioned that some of the more precious stones, such as emeralds, were sent to Rudolf as gifts from his Spanish relations and important diplomats.[177] For example, the dark blue sapphire mounted on Rudolf's personal crown made by Jan Vermeyen was a gift from Duke Heinrich Julius of Braunschweig and Lünenburg, given to the Emperor in 1607 during an audience. According to the Bavarian agent Whilhelm Bodenius, Heinrich Julius wore the blue emerald on a ribbon suspended around his neck. While showing the Duke his yet unfinished house crown, Rudolf remarked on the emerald. The Duke then immediately offered it to the Emperor, who then had it mounted on the top of the house crown where it may be seen today.[178] As mentioned in the introduction to this thesis, the Czech aristocrat, Petr Vok of Rožmberk also frequently sent gifts of stone, including raw ores as well as cut vessels that were made at his court in Třeboň.[179]

Surviving inventories indicate that stones, both in their raw form as well as finished works of art, were numerous in Rudolf's collection. These lists provide useful information about the quantities and types of stone artefacts, in some cases specifying their perceived worth. The inventory produced by the Protestant Bohemian Estates in

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[177] For example, in 1582 Khevenhüller acquired an emerald ore, a *handstein*, see Pérez de Tudela and Gschwend, "Luxury Goods," 9, 33n56.

[178] The event was recorded by the Bavarian agent Wilhelm Bodenius on 22 September 1607 as follows: "*The day before yesterday the Emperor showed the duke* [Duke of Heinrich Julius of Brunswick] *his new house crown* [Hauskrone]. *This is how it happened: when his grace [the duke] was in audience with the Emperor, he wore on his chest, suspended on a silk ribbon, a precious sapphire, which greatly appealed to his Majesty* [the Emperor]. *When the duke realized this, he honored him* [the Emperor] *with it* [the sapphire] *and His Majesty had the sapphire placed at the top of the above mentioned crown…"*, BHStA Munchen, K. schw. 14989, fol. 47v, as cited in Hilda Lietzmann, *Herzog Heinrich Julius Zur Braunschweig und Lüneburg, 1564-1613: Persönlichkeit und Wirken für Kaiser und Reich* (Braunschweig: Selbstverlag des Braunschweigischen Geschichtsvereins, 1993), 27-8.

[179] Chapter 1: Introduction, 1-2.

1619 provides an estimate of the value of a portion of the collection, as it existed that year.[180] Towards the beginning of the Thirty Year's War (1618-1648), the Protestant Bohemian estates required liquid assets to pay their military in order to secure the position of the newly elected King of Bohemia, Frederick V, Elector of Palatine (King of Bohemia 1619-1620). Therefore, the purpose of the inventory taken in 1619 was to appraise the artefacts in the *Kunstkammer* that could be readily sold for a high price. While the inventory does not include all the objects that were still extant in the collection, such as the collection of paintings (valued by Morávek to be worth around 25 000 000 Gulden),[181] the appraisal of artefacts of precious and semi-precious stones provides important information about their perceived monetary worth.[182]

The first part of the 1619 inventory lists things according to groups and types and usually includes the appraised value for each entry, at times giving a value for a group of similar objects (the second part of the inventory provides a location of the artefact without its value). However not all the entries are matched with a corresponding value. For example, artefacts of agate (fol.12b), red coral (fol. 13a), or lodestones (magnetic oxide of magnetite) (fol. 13b) are only mentioned but not assigned a worth, suggesting

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[180] Morávek, *Nově objevený inventář*, iii.

[181] The inventory of the *Kunstkammer* taken in 1621 includes the list of paintings that still belonged to the *Kustkammer* in Prague, Ibid., iv. To better understand these amounts, it is useful to compare the values given above to the monthly salaries of some of Rudolf's artists. For example, Ottavio Miseroni was paid 15 Gulden monthly, Caspar Lehman was paid 30 and Giovanni Castrucci was paid 20, Bukovinská, "Několik poznámek," 280. See also Ibid., "Zu den Goldschmiedearbeiten der Prager Hofwerkstätte zur Zeit Rudolfs II," *Leids Kunsthistorisch Jaarboek* 1 (1982): 71-82.

[182] For a discussion that addresses the existing Rudolfine inventories, see Fučíková, "The Fate of Rudolf II's Collection,"173–180; Bukovinská, "The Known and Unknown *Kunstkammer*," 199–227; Ibid., "Kunstkomora Rudolfa II. ve světle inventáře z let 1607-1611. Společnost v zemích Habsburské monarchie a její obraz v pramenech (1526- 1740)," *Opera Historica* ed. Václav Bůžek and Pavel Král 11 (2006), 121–145; Neumann, "Das Inventar," 262–65; Rotraud Bauer and Herbert Haupt, "Das Kunstkammerinventar Kaiser Rudolfs II. 1607-1611," *Jahrbuch des Kunsthistorischen Museum Wien* 72 (1976).

that they were perhaps not as highly prized, could not be sold as quickly as the more precious items, or perhaps the appraiser was unsure of their worth.[183] Other important artefacts that were appraised include an extensive collection of arms and armour, various *naturalia* (such as horns of foreign animals), mirrors, bronze sculpture, clocks, manuscripts, porcelain, portrait medals, and mathematical instruments. However, precious and semi-precious stones form the most significant portion of the appraised artefacts.

The 1619 inventory lists appraised artefacts made from both "Bohemian" and "Oriental" [*behmisch* and *orientalisch*] stones (such as jades, agates, jaspers, topaz, and emeralds, diamonds, bezoar stones, among others) both cut [*geschnitten*] and "uncut" [*ungeschnitten*], as well as stones that were artistically embellished (i.e. stones that were sculpted into vessels [*trinkgeschier*] and some set in silver or gold), slabs of stone embellished with paint [*gemäl auf stain*), jewelry, and landscape *commessi* in *pietre dure* [*Landschaften von jaspis eingelegt*].[184] What we can discern from this list is that origin was an important factor in determining the value of a particular artefact (whether or not the stone was left in its raw form or was artificially transformed (i.e. cut or embellished with other materials). The corresponding values (in Gulden) are as follows: *commessi* tables are valued at 111 800 and *commessi* writing desks at 104 000; glyptic works are at 34 059; cut and uncut stones at 7 540; landscape *commessi* at 6 210; artefacts of semi-

[183] Morávek, *Nově objevený inventář,* iii-viii.

[184] Ibid., 7. The "oriental" stones, mentioned mostly in folios 22a to 22b, were likely purchased abroad or sent as gifts (most likely from Spain) such as the emerald cluster from Muzo, Columbia, that was sent to central Europe as a gift by the Spanish Habsburgs and was given to the Elector August II by Rudolf II in 1581, as discussed in Chapter Two of this dissertation, 53-54. See also Watanabe-O'Kelly, *Court Culture in Dresden*, 75, 99.

precious stones displayed around the room at 5,001; stone artefacts held in a round container at 2,258, and some artefacts in an old cabinet lined with velvet are valued at 180 Gulden.[185] The total value of the artefacts made of stone entered into the 1619 inventory is thus 272 248 Gulden, and if we consider the stone objects that were omitted, it is reasonable to assume that the grand total for all the stone artefacts listed in the inventory would have been well over 300 000 Gulden.[186] This means that in the 1619 inventory, based on the artefacts that were appraised—that is, those that were deemed most valuable—55% of the objects were made of semi-precious stones.[187] Based on this data, we can see that furniture made of *commessi* of hard stone was by far the most expensive, followed by landscape *commessi*, vessels made of semiprecious stones, and paintings on stones. This information also tells us that glyptic art, such as carved stone vessels, cameos, and small sculpture, (92 entries) and cut and uncut raw stone (71 entries) were by far the most numerous in Rudolf's collection, which points towards his fascination in transforming stone into *Kunstkammer* pieces as discussed below. The fact that *commesso* works are less numerous, but the most expensive, also indicates they were the most time consuming to make.

[185] In the inventory these categories are described in German as follows: *Geschnittene trinkgeschier von edlgestäin*, fol. 17b-21b; *Geschnitten und ungeschnitten edlgestein*, fol. 22a-23b; *Nach diser inveentur hat sich in aim zimmer mehr dergleichen edlgestain gefunden*, fol. 24a-24b; *Aine grosse rune skatl, darinnen geschinttenesachen zum einfassen. Als,* fol. 24b; *Landschaften von jaspis eingelegt*, fol. 30a; *Gemäl auf stain*, fol. 30b; *Tafeln und tisch*, fol. 33a-33b; and *Schreibtisch*, fol. 2a, See Morávek, *Nově objevený inventář*, 1, 5-12.

[186] Ibid., 4.

[187] According to Pavel Skála ze Zhoře, the entire collection was valued around 17 million Gulden, *Historie česká od r. 1602 do roku 1623*, vol. I (Prague: K. Tieftrunk, 1865), 336.

Transformation of stone

In 1586 the Venetian jeweler Jacomo Ceynich, an internationally connected jeweler who worked for various princes (including, the Medici grand dukes and the duke of Mantua) presented Rudolf with some of his jewelry and was in turn shown "many types of stones and vases that [the Emperor] had had made in Milan, and the stones were from Bohemia."[188] From Ceynich we thus learn that in the area of glyptic art, at the beginning of Rudolf's reign and prior to the establishment of the Miseroni workshop, the glyptic works of art in Rudolf's collection were made in Milan using stones that Rudolf obtained in Bohemia through extensive mining activity. The courts of Spain, France, and the Papal court in Rome also relied on Milanese skill and services. Considering Rudolf's zeal for artefacts made of stone it is not surprising that he aimed to establish his own glyptic workshop at the Prague court. The realization of a glyptic imperial workshop was accelerated when in 1587 Count Claudio Trivulzio presented Rudolf with an introduction piece by Giovanni Ambrogio Miseroni, consisting of a ruby the size of a fingernail engraved with the coat of arms of Rudolf, surrounded by the collar of the Order of the Golden Fleece. The delicate handling of the stone material must have impressed Rudolf, who received the work with pleasure and the Miseroni brothers, Giovanni Ambrogio and Ottavio, established a glyptic workshop in the capital in 1588. The family workshop in

[188] Distelberger, "Castrucci and Miseroni," 28n1. Ceynich eventually settled in Prague; later his son became the supervisor of Rudolf's collections, see Fock, "Pietre Dure Work," 56n17.

Prague produced cameos, ornate vessels, and small carvings well into the middle of the seventeenth century.[189]

The glyptic work produced at the Prague court speaks to the interests in the material of Bohemian stone and its aesthetic qualities and potential, a quality that may similarly be evinced in the *commesso* work, as discussed below. The objects produced by the workshop, particularly by Giovanni Ambrogio, display a stunning aesthetic treatment of the brilliantly colored stone material, which gives the impression of softness and malleability.[190] For example, the small sculpture, *Venus and Cupid* carved by Giovanni Ambrogio, has been transformed by the artist from a single, solid piece of chalcedony into a beautiful composition of a nude Venus and Cupid in a tender embrace (Fig. 8). What is remarkable is that the artist would have had to adjust his sculpture as he incised into the stone, allowing the natural markings and coloring of the stone to guide his choices in determining the composition; in other words he could not impose a preconceived design onto the stone. The natural color of the stone is used to reinforce different parts of the composition: the dark red-brown section is used for the platform upon which the two figures recline, the nearly white sections are used for the bodies of the figures, the orange-red section is used for Venus's hair, and the darkest area of the chalcedony stone is used for the inkwell behind the figures. The natural coloring of the stone and the soft rendering of forms by which hard stone is transformed into wax-like flesh, suggests a captivating interplay between nature and art in which the viewer is asked

[189] Distelberger, "Castrucci and Miseroni," 35-38; See also P. Venturelli, *Oreficerie e oggetti preziosi dall'età sforzesca all'inizio del Settecento*, in *Le arti decorative in Lombardia nell'eta moderna*, ed. V. Terraroli (Ginevra-Milano: Skira, 2000) 134, 137-141.

[190] Distelberger, "Castrucci and Miseroni," 36.

to continually oscillate between admiration of the exquisite material and the expert handling of it by the artist.

Another equally striking work is a pitcher of chalcedony and gold made by Ottavio Miseroni (who carved the vessel between 1590-1600) and Paulus van Vianen (who added the gold mounting in 1608) (Fig. 9). In this work Ottavio turned a block of yellowish red chalcedony into a hybrid form: a pitcher transforming into a dragon whose wings seem to wrap around the vessel and whose body forms the handle of the pitcher. Below the spout is a grimacing face of a gorgon. The figure of a nereid made from gold, added later by van Vianaen, stands above the spout and pulls the creature by the neck using a chain that is attached to a decorative collar around its neck. The gold cover of the pitcher is complemented by a gold base composed of alternating rams and reclining nudes. This pitcher, also made of a single piece of chalcedony, is a prime example of the integration of different materials, in this case gold with chalcedony, and speaks to the frequent collaboration between artists that took place at the court of Rudolf II.

The glyptic works of art described above both demonstrate the mastery of their material by the skilled hands of the artist who created them. In each work the medium of stone has been transformed through cutting, forming, and polishing into an artefact in which the naturally occurring material properties of chalcedony and jasper are in harmonious dialogue with its newly given form. While nature is being transformed into an aesthetically pleasing work of art, its surface qualities—the natural markings and colorings, its polished sheen, and its seeming malleability—continually remind us that it is stone that we are admiring; at no point in our viewing of the work is the truth of the material obscured. The forms carved from stone celebrate the material qualities of the

jasper and the jasper stone's aesthetic and transformative potential is brought to the fore. Before I discuss how this transformation of stone into a work of art functions differently in *commesso* work, I return to de Boodt's account of the properties of stone, which illuminates how these artefacts may have been perceived. This in turn leads to a discussion of Rudolf's commissioned tabletop at the Galleria dei Lavori.

The commissioned tabletop

In his dedication to Rudolf II in the aforementioned book, *Gemmarum et lapidum historia,* de Boodt elaborates upon the qualities and properties of stones which, if we recall, are said to increase the dignity and majesty of rulers. He emphasizes that Rudolf surpasses them all in his quest and desire for gems and stones. What follows is noteworthy: De Boodt clarifies that this is

> …not because through their [the stones'] dignity you [Rudolf II] may increase your dignity and majesty (which is already so great that it does not require any external support), but so that in them you may contemplate the perfection of God and his ineffable power, which seems to have brought together the beauty of the whole world and to have enclosed the power of all other matter in such minuscule bodies, whereby you may ever have before your eyes something of the light and appearance of the Divinity.[191]

In his study on de Boodt and his philosophy, Ivo Purš explicates de Boodt's understanding of the virtues of stones, which derives partially from Abbot Suger's consideration of light as a manifestation of Divine beauty. Although it should also be noted that de Boodt's passage invokes Revelations 21 where the heavenly Jerusalem,

[191] Translation provided by Karla Langedijk, "The Table in Pietre Dure for the Emperor. A New Understanding of Rudolf II as a Collector," *Mitteilungen des Kunsthistorischeschen Instituts in Florenz* 42 (1998): 376n5.

built of precious stones, is bathed in light that emanates from the divine.[192] For de Boodt, precious stones increase the dignity of rulers because the stones acquire the resemblance of light—the most beautiful, dignified, grandest element in the heavens and the source of all beauty. As he explains, the source of light is the Sun—the essence of light—and since God is the originator of the sun, de Boodt likens light to the essence of God. Stones acquire the resemblance of light, and in so doing reflect the divinity of God, which is why when we admire gems and stones we are admiring the beauty and perfection of God.[193] In appealing to his patron in the characteristic way, stating that since Rudolf II has already reached a zenith of utmost dignity and majesty due to his interest, knowledge, and collecting of stones, de Boodt suggests that the Emperor's quest is beyond the material needs of ordinary rulers. Instead, Rudolf's goal is to contemplate the essence, beauty and divinity of God resembled in the light that gems reflect.

To prove his point that this is clearly what Rudolf intends, de Boodt continues as follows:

> "…That this is the mind of your Sacred Imperial Majesty, is shown by the table, which your Sacred Imperial Majesty ordered to be made, the eighth wonder of the world, in the manufacture of which so many years and so much money had been spent, and which is so artfully executed…. Also the imperial crown, which your Sacred Imperial Majesty had made from diamonds, pearls, rubies and pure gold in

[192] For Abbot Suger earthly materials, such as gold and gems guided the mind towards a higher contemplation of God as stated on the inscription on the bronze doors made by Suger for the Abbey of St. Denis: "Whoever thou art, if though sleekest to extol the glory of these doors, marvel not at the gold and the expense but the craftsmanship of the work. Bright is the noble work; but, being nobly bright, the work should brighten the minds so that they may travel, through the true lights, to the True Light where Christ is the true door. In what manner it be inherent in this world the golden door defines: The dull mind rises to truth through that which is material and, in seeing this light, is resurrected from its former submersion,." Abbot Suger (1081-1151), *De administratione*, chapter XXVII, as published in Erwin Panofsky, *Abbot Suger on the Abbey Church of St. Denis and its Art Treasures* (Princeton: Princeton University Press, 1979), 47-49. However, Ivo Purš has emphasized that de Boodt differed from Suger in his more empirical approach, based on experience, see Purš, "Anselmus Boëtius de Boodt," 535–79.

[193] Purš, "Anselmus Boëtius de Boodt," 539–45.

> the price of several thousand Gulden. And besides these also the necklace made from the most beautiful gems, which in its final cost overcame even the crown, and a countless other things decorated with various precious gems, so that in my view never had any emperor owned such a great amount of gems, as your Sacred Imperial Majesty…"[194]

For de Boodt, the sheer number and worth of precious artefacts in Rudolf's possession, a fact that was possible only because of the Emperor's own dignified and majestic virtues that needed no help through gems and stones, demonstrates that Rudolf's aim in ordering the making of all the beautiful things was to contemplate God's power and divinity—qualities that are inherent to the substance of stones through the essence of light.

In de Boodt's book, it is the second tabletop, ordered by Rudolf from the Galleria dei Lavori in Florence, to which the author draws particular attention. He states that it is worthy of the Seven Wonders of the Ancient World. From inventories and other contemporary descriptions we learn that the tabletop measured two *braccia* on either side (about 116 cm x 116 cm), and was made of jasper, agate, and other semi-precious stones.[195] At its center was the monogram of Rudolf II, composed of garnets set in gold, in turn set in white ground, and surmounted by the Imperial crown around which were agate and jasper stones, some of which were assembled into pictures of birds, flowers, and trophies. Florentine documents mention four coats of arms, likely the arms of the four Habsburg brothers of the Emperor: Matthias, Ernst, Albert, and Maximilian. The entire surface was surrounded by a floral frieze.[196] Upon its arrival at the Prague court, the tabletop received a bronze base that was composed of a kneeling Ganymede and an

[194] I thank Ivo Purš for his aid with the translation of this passage from Latin.

[195] Langedijk, "The Table in Pietre Dure," 375n2.

[196] Fock, "Pietre Dure Work," 51–58; Langedijk, "The Table in Pietre Dure," 58–82; Distelberger, "Castrucci and Miseroni," 28–39; Neumann, "Florentiner Mosaik," 157–202.

eagle cast by Adriaen de Vries. Based on an inventory taken between 1607 and 1611 we know that the table stood in the main hall of the *Kunstkammer* where it could be admired by people who were given the special privilege of seeing Rudolf's collection.[197] At some point after Rudolf's death the table was removed from Prague and over time ended up in the collection of the Archduke Leopold, where it was destroyed by fire in 1731.[198]

In his praise of the tabletop de Boodt first emphasizes the length of time required to bring it to completion, as well as the great expense involved. Indeed, under the supervision of Jacques Bijlivert (1550-1603) the tabletop took six and a half years to complete.[199] The final payment was made in 1597 and its total cost, according to a report by the Venetian ambassador Francesco Vendramin was 20 000 Scudi.[200] As Willemijn Fock has elaborated, part of the reason for the lengthy manufacturing process was due to delays caused by the tardy arrival of designs and issues surrounding one of the workers who faced imprisonment.[201] Encased in a box that bore Rudolf's coat of arms—designed

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[197] Fučíková, "Collections of Rudolf II in Prague," 52.

[198] Langedijk, "The Table in Pietre Dure," 369-370. While Rudolf's famous table no longer exists, it may be glimpsed in several paintings completed in the 1650s by David Teniers the Younger. In these paintings the table stands in a picture gallery belonging to the Archduke Leopold. The table is depicted laden with papers and objects, obstructing its surface of *pietre dure* from view. Its depiction in the paintings by Teniers showcases how the table may have been used in its original location in the *Kunstkammer* of Rudolf II. For the collection of Archduke Leopold's collection, see Renate Schreiber, *Ein Galerie nach meinem Humor: Erzherzog Leopoold Wilhelm* (Wien: Kunsthistorisches Museum, 2004.)

[199] Work on the tabletop began in 1590 by Gian Ambrogio, Stefan Caroni, and Cristofano Gaffuri, Fock, "Pietre Dure Work," 51–58.

[200] Neumann, "Florentiner Mosaik," 169. Fock provides a smaller amount that does not include the salaries of the *segatori* (the stone cutters), her total is 10 350 Scudi, "Some Relations," 53. To compare this amount to painter's earnings, see Richard E. Spear, "Scrambling for Scudi: Notes on Painters' Earnings in Early Baroque Rome," *The Art Bulletin* 85 (2003): 310-320.

[201] Based on the correspondence of Jaques Bylivelt, who reports that even though materials for the tabletop had arrived, the designs had not. Despite his frustration he states that the table will turn out as one of the most beautiful in the world, see Fock, "Some Relations," 54. Fock further elaborates that the painter Ludovico Butti provided designs in 1593 for the encircling frieze, three coats of arms, and two smaller

and decorated by Ludovico Butti—the tabletop finally arrived in Prague in August of 1597 under the care of one of its makers, Ambrogio Caroni, who accompanied the shipment from Florence to Prague over a period of four months.[202]

In his dedication to Rudolf II, de Boodt praises the quality of the tabletop and is mesmerized by the visual effect of the stones that appear to be joined together in such a way "…that the gems (joined invisibly) represent forests, trees, rivers, flowers, clouds, animals, and diverse shapes of the most beautiful things so well, that they appear alive; a similar work is not to be found in all the world…" Significantly, as explained below, de Boodt is remarking upon the visual effect produced naturally through the interplay of the Bohemian stones, and not the pictorial representation of landscapes created by the artist. In a chapter on jasper in the same book de Boodt again mentions the tabletop and elaborates on the type of jaspers used for its creation. He writes:

> Jasper does not exceed the value of agate because it is not as beautiful. However, the kind that nature has decorated with various colors and images is greatly valued by sellers. I have several that appear to me so pleasant that they could not be sold for the usual price. I have seen several of these in a cabinet of Rudolf II, my most merciful lord, which naturally reflected (represented) forests, marshes, landscapes, trees, clouds and rivers, that when seen from a distance, they did not look like stones but like pictures. They were held in such great esteem by his imperial majesty, that he ordered that several jaspers of different colors be alternately and regularly assembled in a manner that would create a tabletop. [This tabletop] was then decorated with diverse precious stones/jewels, which so precisely reflected shapes of pictures of various places, rivers, trees, mountains, cities and clouds that one cannot adequately admire the artistry of nature and the diligence and dexterity of the artist. He was able to join the jaspers in such a way that the joins are not visible, or serve the cause and the picture when they create the edges of trees and outlines of buildings or mountains. The creation of this perfect work took many years. It was so precious that it cost many thousands of gulden and also admired because it testified to the artistry of nature and to the dexterity of the artist, and

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friezes. He was also responsible for decorating the box that transported the tabletop to Prague in 1597. The box was decorated with Rudolf II's coat of arms and a painted picture of the tabletop, 53.

[202] Ibid.

> could be considered a wonder of the world, and be compared without exaggeration with the temple of Diana at Ephesus."[203]

What impresses de Boodt is the particular quality and the properties of the jasper stones used to make Rudolf's commissioned table, which when seen from a distance gave the impression of landscapes. De Boodt's admiration of the work hinges on the ambiguous material nature of the *commesso* tabletop, which causes him to be torn between marveling at the "artistry of nature" or the skill of the artist. Compounded with the notion that through this beautiful object one can contemplate the perfection and divinity of God, de Boodt is captivated by the very ambiguity at not being able to pin down the *commesso* table's true material nature. I argue that for Rudolf this is also the very quality that made it into such an appealing work of art.

The tabletop generated multiple accounts, which points to its significant discursive life. The earliest known description of the tabletop, by Agostino del Riccio in his *Istoria delle pietre* (1597), gives us an idea of the tabletop's appearance and highlights the artefact's exemplary status. In the entry for agate del Riccio praises the quality and beauty of Bohemian agates, giving the example of the tabletop that Rudolf II had commissioned. Similar to de Boodt, del Riccio emphasizes that no similar work had ever been made in the entire world.[204] He writes that it was made from semiprecious stones and jewels and that it "appears in one piece and not committed in marble or

[203] English translation is mine. For a Czech translation of de Boodt's text, see Purš, "Anselmus Boëtius de Boodt," 547-8n44. For excerpt of original Latin text, see Anselmus Boëtius de Boodt Liber II, cap. CII, "Dignitas, usus, valor et imitation iaspisdis," in *Gemmarum et lapidum historia*, 129. Compare to the translation by Langedijk, "The Table in Pietre Dure," 376n4.

[204] Langedijk, "The Table in Pietre Dure," 375n2.

bardiglio, or other sort of marble, how they make tables in Florence and Rome."[205] Del Riccio's description suggests that the tabletop was made in the novel manner of Florentine *commesso*, which comprised, as Annamaria Giusti explains, "…a mosaic ensemble entirely formed of *pietre dure*, which dispensed with the need for a ground or base since it was composed of shaped-stone sections perfectly fitted together."[206] In his description del Riccio proclaims "[t]his table was made to perfection by the most excellent masters that were selected for this beautiful work by the Grand Duke Ferdinando de Medici. The stones that I have seen in that table have all come from the state of the Emperor."[207] Del Riccio then describes the stones as follows:

> "…beautiful agates of various kinds and colors, some of which are red and white, others white and gray, others brown and yellow, and have so many colors and *scherzi* that it would be tedious to describe….There is so much variety [of agate], and those who wish to see this beautiful work must go in the *guardaroba*, and see a painting of the tabletop that was done by the greatest diligence by the most excellent miniature painter Daniel Flosche Fiammingo [Daniel Fröschel], with whom I keep a friendship. [Here] more can be seen painted, many beautiful jaspers, also many carnelians that vary in color and *scherzi* that mother nature gives them. Still there are an infinite [number of] garnets, amethysts, carnelians, chalcedony; and some of these stones are made into birds and trophies and other beautiful things that are too long to say."[208]

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[205] Agostino del Riccio*, Istoria dell pietre*, ed. Raniero Gnoli and Atiilia Sironi (Turin: U. Allemandi, 1996), 183. Translation mine.

[206] Giusti, "The Grand Ducal Manufactory," 74.

[207] Del Riccio*, Istoria dell pietre*, 184.

[208] Translation fom Italian is mine: "L'invittissimo Imperator Ridolfo l'anno 1597 ha ottenuto di vedere fornito il suo bellissimo tavolino, quadro poco piu che due braccia per ogni verso, opera non piu stata fatta al mondo dicono gl'amatori dell'anticaglie; indi avviene che detta tavola e tutta di pietre dure e gioie; ma tutta apparisce d'un pezzo e non commessa in marmo o bardiglio, o in altra sorte di marmo, come si fanno i tavolini in Firenze ed in Roma; e questo tavolino e stato condotto alla sua perfezione da i piu eccellenti maestri che fossero giudicati a tal bell'opera dal Gran Duca Ferdinando de' Medici. Le pietre che ho veduto in detta tavola, tutte son venute dello stato dell'invittissimo Imperatore nominato, e son queste cioe: agate bellisimo di varie sorti e colori; alcune erano bianche e rosse, ed altre bianche e bigie; altre lionate e gialle; avevano vari colori e scherzi, ch'erano in dette pietre, che sarebbe cosa tediosa a dirle; tanto variano dette agate; ma chi desidera vedere tal bel'opera, vada in guardaroba, e vedra questo tavolini dipinto con somma diligenza dall' eccelente miniatore Daniel Flosche Fiammingo, con cui tengo amistà; e più si vedrà dipinto molte sorte Diaspri bellissimi, altresì molte corniuole; che variano di colori e scherzi, che fa la madre

Marveling at the variety and beauty of the stones, del Riccio conveys his wonder. The tabletop was different from previously created *commessi*, a characteristic that del Riccio enjoys. He appreciates the tabletop that was constructed for the Emperor because it is not set in marble but in different types of semiprecious stones and jewels of all kinds and of many different colors. Del Riccio goes to significant lengths noting the different types of stones and their colors, which he finds particularly striking. His use of the term *scherzi* may be translated as jokes and its appropriation by del Riccio suggests that there was something particularly enjoyable about the effect the stones had on the viewer.[209] He is referring to the fact that the natural stones reflected images that seemed contrived through artificial means, but were in reality naturally occurring. Del Riccio is also impressed with the quality of the work, stating that it was constructed "to perfection" by the best masters who were particularly selected by the Grand Duke himself.

Based on del Riccio's account, the tabletop for the Emperor was a very important commission for the new ducal workshop and what differentiated it from the more typical *pietre dure* work done in Florence were the physical properties of its materials shipped all the way from Bohemia—its colors, the variety of stones used, and the *scherzi* contained within the stones themselves. Note that del Riccio does not mention anything about landscapes, a subject on which I elaborate below.

Natura en esse. Ancora vi sono una infinita di granatine, amatiste, corniole, calcedoni; e parte di queste pietre sono ridotte in ucelli, in arme, & altre cose che si vedono in si bell'opera, che molto prolisso a dirle," in Agostino del Riccio*, Istoria dell pietre*, ed. Raniero Gnoli and Atiilia Sironi (Turin: U. Allemandi, 1996), 183-84. The miniaturist to whom del Riccio refers is Daniel Fröschel, the imperial antiquarian from 1607-1612; however, the color painting of the tabletop has never been found, see Langedijk, "The Table in Pietre Dure," 375n2.

[209] For a discussion of the 'serious jokes' of Arcimboldo in a similar vein see Thomas DaCosta Kaufmann, *Arcimboldo: Visual Jokes, Natural History, and Still-Life Painting* (Chicago: University of Chicago Press, 2009); Ibid., "Caprices of Art and Nature," 35–51.

Both del Riccio and de Boodt praise the table's decorative nature and exquisite arrangement of different colored stones. De Boodt in particular draws our attention to the landscapes and cities that may be seen in the stones as if they were paintings executed from life. Although del Riccio does not mention the landscapes, it is what he understood by the term *scherzi.* In his more thorough passage on jasper cited above, de Boodt states that the stones "reflected" images of landscapes. Rudolf Distelberger argues that "[n]othing by either writer [del Riccio or de Boodt] provides any sure indication that Rudolf's table featured landscape *commessi*; they only mention agates and jaspers that *looked* like landscapes."[210] If the tabletop had indeed contained landscape *commessi* would not del Riccio have commented on them, since, as Distelberger points out, these would have formed a very sensational aspect of the tabletop and an entirely new composition for Florentine *commessi* production? The images mentioned by de Boodt must have only been imagined on the part of the viewer and resulted from the naturally occurring markings and patterns in the jasper stone. A similar notion is expressed in Chapter Two where I consider the slab of jasper-agate, in which a seemingly naturally occurring image of a landscape is enhanced by the artist through painting. Rudolf was clearly familiar with this particular quality of the jasper-agates that were mined in his territories and he wanted to use the Bohemian stones for the creation of his commissioned table so that he could admire in them the artistry of nature. In other words, it was the material qualities of the stones that incited Rudolf to supply them for the creation of his commissioned tabletop in Florence, and it is the same quality that eventually resulted in

[210] Distelberger, "Castrucci and Miseroni," 30.

the stones' arrangement into *commessi* that represent landscapes, the topic of the section that follows.

Landscape *commessi*

Although Rudolf's initial attempts in the 1580s at securing the services of a *commesso* master in Prague were unsuccessful, sources indicate that Cosimo Castrucci was employed at Rudolf's court by 1592. He was joined six years later by his entrepreneurial son, Giovanni Castrucci, who became involved in selling large quantities of Bohemian stone to the Florentine atelier.[211] The Castrucci came from Florence; however, the details of Cosimo's life are unclear and so far no connection to the Galleria dei Lavori in Florence has been established.[212] Currently held at the Kunsthistorisches Museum in Vienna, the earliest known landscape *commesso* made in Prague is the *Landscape with a Chapel and a Bridge*. It is dated and signed by Cosimo Castrucci in 1596 (Fig. 10). However, Cosimo would have been involved in *commessi* production in Prague earlier, as indicated by the fact that by 1593 a grinding mill with two grinding wheels was installed in the nearby town of Bubeneč which produced slabs of precious stones particularly for the *commesso* technique, and by 1597 Cosimo was working on a

[211] Beket Bukovinská, "Pierre Dure, Matière Tendre. Quelques Remarques à propos du Bassin en Jaspe Sanguin de Rodolphe II," in *Les Vases en pierres dures* (Paris: Actes du colloqueu, musée du Louvre, 2001), 115–138; Distelberger, "Castrucci and Miseroni," 32.

[212] See Ibid., 31-35.

nearly finished large round *commesso* tabletop.[213] Considering its great size, as the visitor Jacques Esprinchard de la Rochelle reported in 1597, Cosimo would have begun work on it much earlier.[214]

It should be noted that most of the *commessi* landscapes that were produced at the Castrucci workshop were intended as panels that lined the exterior of furniture pieces, such as tabletops, cabinets, or chests. For example the collector's cabinet made around 1610 by the Castrucci workshop incorporates several *commessi* landscapes (Fig. 11). It also includes several slabs of interestingly colored and textured stones. The *commessi* landscapes that remained in Rudolf's *Kunstkammer* as independent pieces, particularly Cosimo's signed landscape discussed below, were most likely included in the imperial collection because they were in some way unique.

The fact that Cosimo's *Landscape with a Chapel and a Bridge* has a copper backing, and the fact that it is signed and dated (1596) by the artist (*Cosimo Castrucci Fior*[en]*tino FE*[ligature] *citt Anno 1596*) suggests that it was made as a presentation

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[213] During the making of Rudolf's table in Florence, the Castrucci workshop was engaged in the construction of a very grand round table that was reported to be able to seat up to twelve people. It is described in the 1607/11 inventory as a "round tabletop, inlayed with all kinds of jasper, garnet and many other stones in gold, in the middle a double eagle, everything as in the case of the square table, of Bohemian stones, with this the base of metal by Adrian de Fries, is a woman with lions," Bauer and Haupt, "Kunstkammerinventar," no. 1156, translation mine. In regards to the base, see Larsson, *Adriaen de Vries*, 45-6. See also Claudia Przyborowski, *Die Ausstattung der Fürstenkapelle an der Basilika von San Lorenzo in Florenz: Versuch einer Rekonstruktion*. 2 vols (Würzburg: Frölich und Kaumann, 1982), 401.

[214] In his journal entry Jacques Esprinchard de la Rochelle, who visited Prague in 1597, described the round table as follows: "And yet another magnificent, although not yet completed and still being worked on; worth more than 200 000 Thaler, which in our money amounts to about 450 000 Francs. The table is round and so big that twelve people could freely and comfortably dine at it. It is partly of fine marble, partly also of jasper and porphyry, in the different representations of animals precious stones have been set, namely diamond, ruby, garnet, hyacinth, sapphire, emerald and other similar stones. And in the middle of the table, there is a large eagle made out of diamonds, which is the imperial coat of arms and the Austrian coat of arms, to which the empire is heir…", cited in Bukovinská, "The Known and Unknown *Kunstkammer*," 222-3n48. See also Bukovinská, "Florenz - Prag?," 168.

piece.[215] However, since as mentioned above, Cosimo came into Rudolf's employ as early as 1593, the *Landscape with a Chapel and a Bridge* was not an *initial* presentation piece to his then potential patron Rudolf II, as has been claimed.[216] It is more likely that it was intended to demonstrate to Rudolf Cosimo's ability to execute a landscape *commesso*.

Landscape with a Chapel and a Bridge depicts an idyllic landscape composed of countless pieces of perfectly cut slabs of multi-colored, semiprecious stones. Our gaze is asked to enter the image at the site of the stone chapel. We are then asked to look down the sloping green hill, past the hunter walking down the incline towards the path that leads to the bridge where two figures seem to stand in conversation. Our view is then interrupted by the river that meanders down through the landscape, creating an inverted 'S' shape in the center of the picture as it moves closer to the horizon. Our experience of the river culminates at the site of the fortress-like cluster of buildings and we are left to assume that the river's origin is somewhere in the hills and mountains in the horizon. The illusion of depth in this picture is achieved through the use of four consecutive zones that work to bring us deeper into the landscape. The first zone occupies the portion of the image created by a diagonal line that extends from the top left corner to the bottom right corner, effectively splitting the image in half diagonally and engulfing the piece of land closest to the viewer—the chapel, the trees on the left, and the sloping hill that descends

[215] See catalogue entry authored by Distelberger, in Koeppe, *Art of the Royal Court,* 220.

[216] C. Willemijn Fock, "Pietre Dure Work," 52. Fock makes this assumption based on an earlier dating of this piece which was thought to have been signed as 1576 rather 1596. It has since been determined that the latter date is correct, see Claire Vincent, "Prince Karl I of Liechtenstein's Pietre Dure Tabletop," *Metropolitan Museum Journal* 22 (1987), 165; Bukovinská, "Kunsthandwerk," 513; Rudolf Distelberger, *Die Kunst des Steinschnitts: Prunkgefässe, Kameen und Commessi aus der Kunstkammer*, ed. Wilfired Seipel (Vienna: Kunsthistorisches Musem, 2002), 287-88; Bukovinská, "Pierre Dure, Matière Tendre," 115–138.

to the path below. The second zone, separated from the former and delineated by the flowing river, is formed into a mass of land in the shape of a triangle. It consists of a few buildings, trees, fields, and a cluster of buildings perched on a hilltop on the right. The third zone occupies the mass of land that is even further in the distance. It begins on the opposite bank from the village, continues through the grassy and wooded land, engulfs the citadel in the distance, and continues towards the horizon. The final zone is occupied by the whitish overcast sky suspended above the horizon. All four zones are connected by the trunk of the tree that takes root in the first zone and serves to bring our gaze back towards the foreground.

Jan Breughel's *Hunters in the Snow* (1565) has recently been identified as the model for Cosimo Castrucci's commesso *Landscape with a Chapel and a Bridge* (Fig. 12).[217] The *commesso* landscape clearly follows a similar compositional formula that splits the work from the top left corner to the bottom by a sharp diagonal that separates the foreground—with the hunters and dogs on the left—from the background, composed of a receding landscape with a bridge, a body of water, and figures on the right side of the painting. Breughel's *Hunters*, along with the others that together comprise the *Four Seasons*, was amalgamated into Rudolf's collection in 1595 following the death of the Emperor's brother, the Archduke Ernst of Austria, Governor of the Spanish Netherlands.[218] Rudolf had a significant interest in landscape painting and besides works by Jan Breughel, his collection of paintings included works by Hans Bol, Jacob Grimmer, Gillis Mostaert, Davic Viinckboons, Tobias Berhaeght, and Joos de Momper. Landscape

[217] See catalogue entry authored by Distelberger, in Koeppe, *Art of the Royal Court*, 219.

[218] Ibid.

commessi produced in the Castrucci workshop may thus be contextualized in relation to landscape painting that was being collected and produced at Rudolf's court.

Rudolf not only collected landscape painting, but also promoted the genre as a means of studying nature, appointing the Netherlandish painters Pieter Stevens (ca. 1567-after 1624) and Roelandt Savery (1576-1639) for this purpose.[219] Presenting looming forests, and jagged and rugged rocky outcrops, both artists painted idyllic, fanciful landscapes that incorporated a sense of mystery into scenes of nature. Stevens' *Landscape with a Watermill* (1610) is an excellent example of the emphasis on nature that occupies the type of landscape painting produced at Rudolf's court, as suggested by the focus on large trees, rocks piled on the river's edge, and the sun's rays piercing the scene, all overshadowing the activity of the peasants carrying large baskets on their backs (Fig. 13). Between 1606 and 1608 Savery was ordered to travel to the Swiss and Tyrolean Alps to make detailed studies of nature. This undertaking came to include the creation of studies of elements of nature, particularly waterfalls, large standing and fallen trees, and ravines, some of which he later incorporated into his oil paintings.[220] His *Stag Hunt* (1610-13) in which Savery paints a large threatening tree that looms above a scene of a stag hunt is an example of his investigation into nature (Fig. 14). The details of the tree, its branches and leaves seem to nearly overtake the entire painting, leaving only a hint of sky at the top left corner. Light is used in a chiaroscuro fashion and pierces what would

[219] Terez Gerszi, "Landscapes and City Views of Prague," in *Rudolf II and Prague*, 130. See this source for a more detailed account of landscape painting in Prague. For a discussion on the painted or printed models of certain *commessi* landscapes as they appeared in Rudolf's collections, see Vincent, "Prince Karl I," 165-74 and Neumann, "Florentiner Mosaik," 170.

[220] Thomas DaCosta Kaufmann, *The School of Prague: Painting at the Court of Rudolf II* (Chicago, London: University of Chicago Press, 1988), 85.

otherwise be a dark scene, illuminating the moment during which the stag is about to be captured by the pack of hounds at its feet. On the bottom right we can barely make out the figure of the huntsman who advances towards the main scene. In these works, similar to Breughel's landscape, human activity is dominated by nature; however, unlike Breughel's landscapes, particularly the ones I mentioned above, nature is calm and serene. In Savery's interpretations, nature appears threatening and unpredictable.

Savery's approach to his art and his reinterpretation of what he saw during his excursions into nature outside of Prague is exemplified by one of his earlier chalk and wash studies, created shortly after his appointment as *Landsschaftmaler* in 1603 at the imperial court. The drawing *Mountain landscape and view of Prague with the Cathedral of St. Vitus* (1605), held at the Staatliche Museen in Berlin, clearly follows the same formulaic composition that we have seen in Breughel's *Hunters in the Snow*, as discussed above (Fig. 15).[221] The fact that Savery labeled his drawing (giving us the date and location) that looks nothing like the reality of what he would have seen outside of Prague indicates that he took great liberties in his interpretation of what he saw, and wanted us to know the subject of his study. The resulting scene is a fiction since in reality it is the castle and adjoining St. Vitus Cathedral that dominate the landscape. In Savery's version of the scene, the barely visible St. Vitus Cathedral is depicted far in the distance nestled amongst hills and mountains. What has taken precedence is the looming trees rooted in a rocky outcrop that threaten to spill into our space and that serve to divide the picture squarely in half: on the left is a grove and on the right is a hint of a view of Prague, with

[221] For a comparison of Savery's earlier work to Breughel's, see Joaneath Ann Spicer, "The 'Naer Het Leven' drawings: By Pieter Bruegel or Roelandt Savery," *Master Drawings Association* 8, 1 (1970): 30-3, 63-82.

the Charles Bridge, hills, and mountains receding into the distant cloudy sky. Savery is not presenting the truth of what he saw; rather, he has idealized reality with detailed studies of elements from nature that become the focus of the drawing—the forest grove on the left side that culminates in a steep rocky ravine in the center of the drawing. A group of three trees grows precariously on the edge of the cliff, serving to divide the picture squarely in half. To the right is a valley, and in the distance we can barely make out a cluster of buildings, the spire of a church, and a bridge. More typical views of Prague represent the horizon of Hradčany, which includes the area around the castle and St. Vitus' Cathedral, as can be seen in Joris Hoefnagel's drawing of the city from 1595 and in a *commesso* panel made by the Castrucci workshop (Fig. 16). Similarly to Breughel's landscape scenes, Savery has pushed evidence of civilization into the distance and has instead chosen to focus upon striking elements of nature and to combine them in inventive ways that generate an idealized landscape that improves upon reality by presenting it in a more dramatic form. Kaufmann has described this as "the ideal imitation of human life," that is, nature represented and studied "not in its average," but in "its superior or idealized forms."[222]

The practice of the landscape genre, as pursued by Stevens and Savery, is pushed in a different direction in the *commessi* landscapes that were produced by the Castrucci workshop and coincides with the highly innovative approach to the arts and sciences that were practiced at Rudolf's court, as discussed in the introduction. While the general formula of nature dominating over human activity is appropriated in the *commessi* landscapes, in which serene nature dominates human activity, nature is in turn dominated

[222] Kaufmann has described this as "the ideal imitation of human life," that is, nature represented and studied "not in its average," but in "its superior or idealized forms," *The School of Prague,* 85.

by the medium; that is, the artist controls and dominates the natural substance of stone that is artistically treated and selected to depict the image.

Cosimo Castrucci's *Landscape with a Chapel and a Bridge* described above is one among several extant works that depict an idyllic landscape scene from *pietre dure* made in Prague.[223] Another example of an independent panel featuring a fictive landscape that follows a similar compositional formula is the *Sacrifice of Isaac* (before 1603) (Fig. 17). It is unsigned but has been attributed to Cosimo based on visual parallels to his known work.[224] Similarly to Cosimo's signed landscape *commesso*, the composition of the *Sacrifice of Isaac* relies on the strong diagonal that extends roughly from the top left to the bottom right corner. While in the *Landscape with a Chapel and a Bridge* the group of Breughel's huntsmen has been reduced to one lonely figure walking down the hill, in *The Sacrifice of Isaac* the hunters have been replaced by Abraham in the act of sacrificing his son. The sacrificial act is situated amongst a jagged, rocky outcrop on top of a mountain sheltered by a large looming tree. The rock formations are composed of highly textured and striated jasper-agates that were cut and arranged so that their patterning, adds to the very violence of the act. On the right, we see a receding landscape with towns (one of them is a representation of Jerusalem with its city walls and the *tempum domini* at its center), and a castle perched on top of a hill. Closer to the foreground of the picture is

[223] The only realistic view—realistic in that it depicts a real place and not an imagined landscape—is the view of Hradčany. One of these panels is located at the Průmyslové Muzeum in Prague and two are located at the Kunsthistorisches Museum in Vienna, See Beket Bukovinská for a discussion of the city scape of Prague, "Další florentské mosaiky z prahy," *Umění* 20 (1972): 363–370. See also Neumann, "Florentiner Mosaik," for a discussion of the majority of the landscape *commessi* held by the Kunshistorisches Museum. For dating and attribution of other surviving *commesso* panels in Prague, see *Prag um 1600* (1988), cat. nos. 384, 385, 386, 387, 388 as well as Rudolf Distelberger's article in the same volume, "Die Kunstkammerstücke," 459-461.

[224] Distelberger, "Castrucci and Miseroni," 31.

a stone bridge, with a walking figure, a watermill, and a man paddling a boat. Overall the peaceful landscape scene contrasts markedly with the violence about to take place in the foreground. The only element that breaks the serenity of the idyllic scene on the right side is the figure of an angel that appears between the clouds above with arms outstretched, pointing towards father and son, effectively halting the sacrifice that is about to take place. Compositionally, the image is similar to Cosimo's signed *commesso* work and bears striking similarity to Breughel's *Huntsmen* and Savory's sketch of a view of Prague with *View of Prague with the Cathedral of St. Vitus*. Both *commessi* works thus derive from the early Netherlandish landscape painting that would have been accessible in Rudolf's collection and its translations by painters who continued to experiment with the genre at the imperial court.

However, paying heed only to the representational and compositional elements of *commessi* landscapes—to what they picture—overlooks the fact that they function very differently from paintings. While both *commessi* landscapes by Cosimo described above present vibrant scenes that successfully depict depth and coalesce in a convincing impression of a landscape—similar to the way a successful painting may present a landscape, they elicit a much different response on the part of the viewer. In a painted landscape it is the medium of paint—composed of finely crushed, colored minerals mixed with oils—that allows the painter near complete control of his medium. By mixing and layering paint an artist is able to achieve different effects and to create a convincing image of reality. Conversely, in the constructed landscape made of hard stone, the natural markings, striations, and colors of the stones are left intact and their finely cut shapes are

used to negotiate a pieced-together image that exists somewhere between the medium of mosaic and that of a painting.

In both *commesso* works by Cosimo Castrucci described above, different colors of agates and jaspers (e.g. greens, reds, browns, ochers, pinks, yellows and whites) have been carefully selected to form a landscape in which the crisper and brighter colors appear towards the front of the picture. For example, in the *Landscape with a Chapel and a Bridge,* this can be seen with the cladding of the stone chapel, the red earth of the sloping hill and the yellow path that leads towards the stone bridge. The farther our eye moves towards the horizon in the picture, the less distinct the colors are, suggesting the quality of *sfumato* in the horizon. The precise cutting of the stones that coincides with the shapes and forms of the picture at times impedes our ability to differentiate between the individual shapes of individual stones. This is particularly true of the area towards the horizon, resulting in a trickery of the eye and we lose sight of the individual stone pieces.

When viewing the landscape *commessi* from close up—which, considering their relatively small size, is how they demand to be viewed, our eyes are forced to negotiate between the image that results from the arrangement of cut stones (i.e. the general) and the individual carefully selected pieces of colored stones (i.e. the specific). These slabs of stone make the picture, but they also threaten to destabilize it, thereby contributing to a precarious balance between the content of the artwork and its medium. This destabilization is also what makes these landscape *commessi* so intriguing. In different sections of Cosimo's *Sacrifice of Isaac*, for example, exact details of the rocky outcrop the two figures occupy are left to our imagination; we are asked to fill in the details of the space based on loosely delineated suggestions of shapes and colors composed by the

slabs of hard stones. This is similar to the way Bohemian jasper-agates seemed to naturally reflect images of landscapes, as described by de Boodt and discussed earlier in the present Chapter.

The successful outcome of the landscape *commessi* is thus not only reliant on the careful selection of pre-cut slabs but also upon the potential of the stones to transform into compositional elements of a landscape. In other words, it is not simply a form/content issue but something that is connected to the substance, the mining of stone, and the unleashing of transformative potential of the stones—their colors, textures, natural markings, and their ability to reflect light—by the artist who manipulates the material to bring out these very qualities. In this way, the transformation of the *pietre dure* technique into a representational landscape may be likened to the alchemical transformation of base metals into gold, a more precious material, in which the very nature of the substance is transformed into something more valuable. In the *commesso* works, each small individual slab of hard stone is nothing but a colored and textured hard stone; but when arranged into an image by the artist, who has also transformed the stones through cutting and polishing and assembled them to resemble a unified whole, each slab becomes what it represents, or part of what it represents. What is key is that the image that results is suggestive of the very place the stones were mined; that is to say, the landscapes themselves directly reference the landscape from which the stones would have been taken.

In Cosimo Castrucci's landscapes discussed above, stone becomes animated through artificial means, transforming into all three states of matter: solid, liquid, and gas. Textured green jaspers of various opacities become the foliage of trees and fields of

grass, brown jaspers become tree trunks, the white hard stones become water and sky. In this way the medium of stone is made to come to life and transformed into vegetation, a flowing river, the cladding of a house, and clouds in the sky, even figures of people. This is different from painted landscapes, which rely on paint as medium over which the hand and eye of the painter has near complete control in order to depict a landscape. In the *commessi* landscapes, whole pieces of jasper-agates already painted by nature—so to speak—metamorphose into the foliage of trees and tufts of grass, and are sublimated into clouds, or gaseous particles of water.

Rudolf Distelberger has remarked that the technique of *commesso di pietre dure*, when applied to landscape art, achieves a higher degree of truth than the illusionistic painted landscapes of artists such as Stevens or Savery.[225] I suspect that this impression of so-called truth is due to the fact that the landscape *commessi* simultaneously present stones that come from landscapes, while also indirectly referencing the very landscapes from which the stones may have come. In this way, the *commesso* landscapes could be said to be less deceiving in their depiction of reality than an invented landscape that exaggerates and/or idealizes reality using the medium of paint. In other words, the landscape *commessi* are of the material of the landscape, the hard stone, which are used to depict the landscape. In this way nature generates artifice that in turn produces nature, which harkens back to the natural stone. In this way an ongoing conversion between form and content is achieved. It also suggests that the landscape *commessi* are less about the landscape and more about the medium of stone that acts to construct a landscape artificially from which they came. As I have been arguing, it is this oscillation between

[225] This idea has been suggested, but not elaborated upon, by Distelberger, "Thoughts on Rudolfine Art," 192.

material and meaning that made and continues to make the landscape *commessi* so appealing.

Conclusion

The innovation of landscape *commessi* should be related to the entangled material practices in Prague and Florence, as well as the material ambitions of patrons. However, above all it must also be situated within the material properties and potential of Bohemian hard stone. Recent scholarship has focused upon the debate of the initial place of origin of landscape *commessi*. As pointed out by Distelberger, it has often been assumed and repeated that the tabletop Rudolf II commissioned at the Galleria dei Lavori contained actual constructed landscape *commessi*, similar to Cosimo's *Landscape with a Chapel and a Bridge* described above, which would point to the idea that the practice began in Florence.[226] However, considering de Boodt's and del Riccio's descriptions of the tabletop, the fact that the first known landscape *commesso* was produced in 1596 (i.e. one year prior to the arrival of the tabletop in Prague), and the fact that landscape *commessi* do not begin to appear in Florence until 1600, it would appear that the Galleria dei Lavori is not the originator of this practice.[227] However, to say that the Florentine workshop had nothing to do with the development of landscape *commessi* in Prague would be equally dismissive, especially since the Castrucci were of Florentine origin and there were

[226] See Distelberger's discussion of this, "Castrucci and Miseroni," 30-1.

[227] According to Distelberger the first *commesso* landscape work to be made in Florence is an altar depicting Christ and the Samaritan woman at Jacob's well, held by the Kunsthistorisches Museum in Vienna, Ibid. See also Fock, "Der Goldschmied Jacques Bylivelt aus Delft und sein Wirken in der Mediceischen Hofwerkstatt in Florenz," *Jahrbuch des Kunsthistorischen Museum Wien* no. 70 (1974): 89-178.

continuing exchanges between the workshops. Very early on, from the establishment of the Castrucci workshop in Prague, close ties with the Galleria dei Lavori were maintained, not only in the form of commissions but also in the export of Bohemian hard stones sent to Florence for the inlay of the Capella dei Principi, facilitated by Giovanni Castrucci.[228] Furthermore, the fact that by 1600 the Galleria dei Lavori was also making *commessi* landscapes indicates that there must have been communication between the two workshops. Unfortunately, details of this exchange and the manner in which the technique of the landscape *commesso* made its way back to Florence are unknown. However, rather than looking to the origin of the practice (which may never be known for certain) what is essential is that the development of landscape *commessi* had much to do with social practices and exchanges of artefacts, artists, and ideas that came from geologically and historically different places. The exchange of stones for *commessi* between Prague and Florence, as exemplified by Rudolf's commission of the famous tabletop, was firmly connected to the initial gift of the tabletop given to him by the Grand Duke Ferdinando de' Medici. It was this gift that precipitated the second commissioned tabletop in the first place and which facilitated the inauguration of landscape *commessi* in the very specific and creative milieu of the Rudolfine court in Prague. What is more, the development of landscape *commessi* was linked to the material properties of the stones themselves—their transformative and aesthetic potential believed to have been given to them by the essence of God. During the creation of *commessi* landscapes, the transformative quality that was already present in the material of the stone was amplified through artificial means by the *commesso* technique. In this way the transformative

[228] Distelberger, "Castrucci and Miseroni," 31-32.

potential of Bohemian jaspers and agates was turned into an image of nature that celebrated the aesthetic properties of stone.

The material reverberation of the timely gift of a *commesso di pietra dure* tabletop from the Grand Duke Ferdinando de' Medici to Rudolf II not only provided the impetus for an extravagant commission of a second tabletop in Florence, for which Bohemian stone was shipped to the Galleria dei Lavori. The gifts also resulted in the transfer of the *commesso di pietre dure* technique from Florence to Prague. However, it was the particular material qualities of Bohemian jasper-agates that were used during the making of the second tabletop in Florence, that facilitated the development of the *commesso* landscape. When cut into smooth slabs the jasper-agates suggested elements of a landscape, and when turned into *commesso* work at the court of Rudolf, where landscape art was being collected and produced, these stones were arranged to represent idyllic landscape scenes. As I have shown, compositionally these *commesso* landscapes relate to the type of landscape art that was collected and produced at the imperial court. However, seeing them only in this light does not take into account their materiality, which is what made these artefacts resonate for their early modern patrons.

The importance of the Bohemian stones may also be seen as a political act, in which Rudolf was promoting the special God given quality of his land that was abundant in hard stones. The stones' conversion into spectacular commissions that featured landscapes (a reference to the stones' very origin) placed Bohemia center-stage and allowed for a reverberation of Rudolf's dominion and choice of Prague as capital of the Holy Roman Empire, harking back to the former Golden Age under Charles IV.

As I have demonstrated, the potential of the gift is tied directly to the potential of its materials. However, as I emphasized at the beginning of the present Chapter, the agency of the gift is also firmly connected to social practices and interests. Politically it was essential for Ferdinando de' Medici to give a gift that would be sure to awe the Emperor. If Rudolf had not possessed great admiration for *pietre dure* (as demonstrated by the sheer number of hard stone artefacts in his collection and their value, as given to us by the Estates inventory of 1619, the establishing of a glyptic workshop headed by the Miseroni, followed by the *commesso* workshop of the Castrucci), the initial gift of the *commesso* tabletop may have been meaningless. The transformative potential of the gift—the alchemical process—can thus only be appreciated when its material properties are considered in relation to the social practices that activate it.

Chapter Four

Painted Gifts of Horns and Bezoar Stones: The Magic of Things

Introduction

Folio 12 of Codex Miniatus 129, a compendium of natural history held by the National Austrian Library in Vienna, represents two rhinoceros horns standing upright on a green horizontal surface (Fig. 18).[229] Our attention is directed to the left, towards the slightly larger and more extravagantly decorated of the two horns—a horn that had been given to Rudolf II by his mother, the Empress Maria.[230] In the picture, the horn's dark natural surface contrasts with its decorative encasing (made of filigree gold, rubies, and pearls), consisting of four consecutive bands and a finial at the tip joined together by a vertical strip. The interplay between the ornament—the jewels and gold filigree—and the more earthly material of the horn is reminiscent of the relationship between a sacred relic and its reliquary, with the decorative elements functioning as a frame that enhances the prestige of the horn. The second horn, the shorter of the two, stands towards the right edge of the painting, its shiny surface reflecting light as its black tip points away from the viewer. Serving as contrast to the attentively rendered surface of the two horns are the pink brushstrokes comprising the background. Overall, it is the surface quality of the horns that is being emphasized: from the lustrous sheen of the filigree gold and jewels

[229] H. Haupt et al., ed., *Le Bestiaire de Rodolphe: Cod. Min. 129 et 130 de la Bibliothèk National d'Autriche* (Paris: Citadelle, 1990), 118-119.

[230] Pérez de Tudela and Gschwend, "Luxury Goods," 15; Pierre Béhar, "L'occultisme au pouvoir et le pouvoir de l'occutisme: les collections de l'empereur Rudolphe II," in *Les langues occultes de la Renaissance: Essai sur la crise intellectuelle de l'Europe au XVIe siècle* (Paris: Editions Desjonqueres, 1996), 172.

and the light reflective smoothness, to the depiction of striations that occur naturally in the material of the horns.

The horn displayed on the left, intricately embellished in gold filigree, is similar to Islamic jewelry produced in the sixteenth century in southern Spain.[231] Rudolf owned several horns of animals but the decorated horn in the painting that still exists today is a rarity (Fig. 19). It came from Goa and had been acquired by the Empress Maria in 1582 while she was in Portugal, in Estremoz, visiting her Portuguese relatives, the Branganzas. During their meeting, Catherine Braganza had presented the Empress with the 81cm-long rhinoceros horn, which delighted all who were present. It was then nicknamed the unicorn.[232] Later that year, Maria ordered the artefact to be sent from Lisbon to the imperial court in Prague with Rudolf's servant, Hanssen Hilliprandt.[233] Following Rudolf's death in 1612, it was moved from Prague to Vienna along with a significant portion of the Emperor's collection.[234] The horn's original embellishments of filigree gold, more than eighty rubies, and over fifty pearls may be determined based on a

[231] According to Nuno Vassallo e Silva, the gold mounts are similar to Islamic jewelry from the Nasrid period produced in Islamic communities in Portugal who were forced to convert to Christianity in 1496. They left an impressive legacy in gold and silver work, see Helmut Trnek and Nuno Vassallo e Silva, ed., *Exotica: The Portuguese Discoveries and the Renaissance Kunstkammer* (Lisbon: Calouste Gulbenkian Foundation, 2001), 156-157.

[232] Pérez de Tudela and Gschwend, "Luxury Goods," 15.

[233] Ibid., 16.

[234] For an account of the fate of Rudolf II's collection see Fučíková, "The Fate of Rudolf II's Collection," 173–180.

description in an inventory taken in 1750 of the imperial *Kunstkammer* in Vienna.[235] Today only two bands survive.[236]

Horns of powerful beasts foreign to Europe were coveted items in the sixteenth century, prized for their associations with newly discovered lands. They were among the most valuable of natural artefacts collected by princes in their *Kunst*- and *Wunderkammern*, which were repositories of art and natural knowledge. Due in part to their perceived origin in foreign lands, and because they were often misconstrued as horns that came from the mythical unicorn, horns of the rhinoceros were attributed with special powers. Similar to the way a relic of a saint could invoke the will of God to heal the sick; rhinoceros horns were believed to function as powerful antidotes against poison and as remedies against disease. However, the horns' power was not a manifestation of divine intervention but of natural magic.

A gift of such an extraordinary artefact given to an enthusiastic collector of natural and artistic rarities as Emperor Rudolf II—by the recipient's illustrious mother no less —was bound to be received with pleasure. The fact that the horn was recorded and identified as a gift from the Empress Maria in the first entry of the second folio in the only surviving inventory created during Rudolf's lifetime speaks to its high status.[237] Furthermore, as I demonstrate, its particular presentation in fol. 12 of Cod. Min. 129

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[235] "*Ein langes rhinoceroshorn, so mit drei bändern von durchgebrochenen gold, welche mit 82 klenen rubin und 52 deto perlen garniret,"* Entry no. 106 in Heinrich Zimmerman, "Inventare, Acten und Regesten aus der Schatzkammer des Allerhöchsten Kaiserhauses," *Jahrbuch der Kunsthistorischen Sammlungen des Allerhöchstein Kaiserhauses* 10 (1889), CCCVI. As Manfred Staudinger notes, at this time one of the bands was already missing, *Bestiare*, 118.

[236] The horn is currently on display in the *Kunstkammer* exhibit at the Kunsthistorisches Museum in Vienna.

[237] Entry no. 1 in Bauer and Haupt, "Kunstkammerinventar," 5.

described above—the attention dedicated to its surface qualities and the emphasis on ornamentation that draws our attention to its earthly presence—signals the horns otherworldly properties.

The sending of gifts across great distances between family members of the nobility is a well-documented early modern practice. As discussed in the introduction of this dissertation, scholars have focused on the gift's performative efficacy in the production and reproduction of social relations and the representation of power and authority. These contributions have demonstrated the integral role of gifts in the construction of social and political bonds and sacred dynamics, and in mediating familial and dynastic relations. And indeed, Rudolf's gift-giving initiatives exemplify these dynamic possibilities, as argued throughout this thesis.[238] Rudolf maintained familial bonds through letters and gifts sent to the Iberian Peninsula; however, he did so in order to also secure a steady flow of rarities—things believed to possess special qualities and powers. In this Chapter I examine paintings of gifts of *naturalia*—of animal horns and bezoar stones given to Rudolf II—that were contained in the compendium of natural history, Cod. Min. 129 and 130, or Rudolf's *Tierbuch*.[239] I posit that the gifts' painterly representation betrays their intrinsic qualities, that is, their magical properties. Studying contemporary written and illustrated sources that address the use, treatment, and painterly representation of these artefacts, this Chapter argues that it was the desire to possess

[238] See Vocelka, *Die Politische Propaganda*, 166-170.

[239] "Tierbuch," which translates as book of animals, is the name given to the compendium in the *Kunstkammer* inventory compiled by Daniel Fröschel between the years 1607 and 1611. In English the compendium is often referred to as the "Bestiary" or "Museum" of Rudolf. The latter title, *Das Museum des Kaisers Rudolp IIen*, was found written on a separate sheet of paper and added to the compendium in the nineteenth century, Eva Irblich, "Étude codicologique et historique du 'Museum' de Rodolphe II," in *Le Bestiaire*, 77.

precious objects—the *exotica*—and their inherent natural and magical properties that motivated Rudolf II to maintain connections with Spain.

It is important to note that the term 'exotica,' which derives from the fraught expression 'exotic,' is often used by European authors to denote a wide range of beings and things originating in non-European countries that were brought to Europe as samples or exemplars of the so-called New World.[240] Its use in the English language can be traced to the end of the sixteenth century, a few decades after its use in the French language by Rabelais in *Pentagruel* (1552).[241] The term was also in use in the seventeenth century, although its prevalence is unclear.[242] Within its early modern context, as Horst Bredekamp explains, "interest in exotica signified more than simply the wish to subjugate other peoples."[243] Samuel Quiccheberg, in his *Inscriptiones* placed so-called exotic artefacts in the category that dealt with human workmanship on natural materials alongside European things.[244] As Bredekamp notes, in Quiccheberg's recommendations to his patron, the Duke Albrecht of Bavaria, "objects from oversees [had] been integrated

[240] *Oxford English Dictionary*. 2nd ed. (Oxford: Oxford University Press, 1989), 551-552. For a discussion on the evolution of the term "exoticism" in European usage, see Vincenette Maigne, "Exotisme: Évolution en diachronie du mot et de son champ sémantique," in *Exotisme et création. Actes du colloque international* (Lyon: L'Hermès, 1985), 7–16. I thank Vincent Masse for directing me to this article. For additional information regarding ancient views on exotic animals see, Liliane Bodson, "Ancient Greek Views on the Exotic Animal," *Arctos: Acta Philologica Fennica* 32, 61–85. Also see Victor Segalen, *Essay on Exoticism: An Aesthetic of Diversity* (Durham: Duke University Press, 2002).

[241] Bodson, "Ancient Greek views," 61.

[242] Lambert Bidloo explores the indigenous-exotic debate in his *Dissertatio de re herbaria* (Amsterdam: Apud Henr. & Viduam Theod. Boom: 1683). The topic is also discussed in Alix Cooper, "The Indigenous Versus the Exotic: Debating Natural Origins in Early Modern Europe," *Landscape Research* 28 (2003), 51–60.

[243] Bredekamp, *Lure of Antiquity*, 35.

visually in a non-hierarchical fashion."[245] Therefore, foreign things were perceived as equally valuable to similar European artefacts.

The fact that people delighted in the collecting of things from outside Europe further points to their significance. For example, when Cardinal Francesco de' Medici sent Turkish bowls, Mexican idols, a horn of a rhinoceros, along with an Indian gaming board made of mother-of-pearl to Duke Albrecht V in Munich, he specifically stated that these things were offered "for the delight and enjoyment" of the Duke.[246] Therefore, an important element of what made many of the natural artefacts ideal gifts was the pure pleasure they instilled in their recipients at the fact that they were being given something rare, precious, and magical.[247] It is thus important to note that in its early modern usage, 'exotica' is not necessarily indicative of the othering of peoples outside of Europe.[248] On the contrary, at least from the point of view of Europeans, the collecting of exotica in the sixteenth and seventeenth centuries contributed to the project of understanding all of

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[244] Refer to Chapter 2 of this dissertation.

[245] Bredekamp, *Lure of Antiquity*, 35. See also Samuel Quicceberg, *The First Treatise on Museums Samuel Quiccheberg's Inscriptiones, 1565*, trans. Mark A. Meadow and Bruce Robertson (Los Angeles: L. Paul Getty Trust, 2013).

[246] Sigrid Sangl, "Indische Perlmutt-Raritäten und ihre Europäischen Adaptionen," in *Exotica: Portugals Entdeckungen im Spiegel Fürstlicher Kunst- und Wunderkammern der Renaissance*, ed. H. Trnek and S. Haag (Mainz: Zabern, 2001), 272.

[247] Peter Mason, *Before Disenchantment. Images of Exotic Animals and Plants in the Early Modern World* (London: Reaktion Books, 2009), 35.

[248] See Elke Bujok, "Ethnographica in Early Modern Kunstkammern and their Perception," *Journal of the History of Collections* 21 (2009): 17–32. Bujok argues that ethnographic objects were integrated into the Munich Kunstkammer in a non-uniform manner, in order to elicit curiosity; they were thus treated in the same manner as their European counterparts. She suggests that this was in line with the larger worldview of the period that promoted curiosity and wonder at nature. For Bujok, ethnographic objects in the Munich Kunstkammer thus act as evidence of the manifold nature of God's creation. See also Lorenz Seelig, "Exotica in der Münchner Kunstkammer der Bayerischen Wittelsbacher," in *Exotica: Portugals Entdeckungen im Spiegel fürstlicher Kunst- und Wunderkammern der Renaissance* (Mainz: Zabern, 2001), 145–162.

God's creation, and the term will be used in the current Chapter with this understanding in mind.[249]

The shipment that included the African rhinoceros horn sent from Spain to central Europe in 1582 contained other extremely valuable goods. Another horn, taken from an Indian rhinoceros and described as a *Badanhorn*, was a gift for the Emperor from Hans Khevenhüller (1538-1606), imperial ambassador to the court of Philip II in Spain.[250] It is possible that this *Badanhorn* is pictured on the right in folio 12 of Rudolf's *Tierbuch* as described above. In addition to the two horns, Khevenhüller also sent gifts from other Habsburg family members, including two bezoar stones in a wax covered box, an emerald handstone, an elephant tusk, gold buttons, a model of a diamond necklace that had belonged to the Archduke Albrecht, and an aspersorium.[251]

As evinced in a letter that Rudolf wrote to Khevenhüller later in 1582, out of all the other valuable gifts the Emperor received he especially appreciated the decorated rhinoceros horn. In the letter the Emperor singles it out and asks the ambassador to thank his mother profusely in his name.[252] He writes, "…[a]s regards the rhinoceros horn which, as you wrote my most beloved mother the empress gave me […] I believe it to be

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[249] See also Ben Schmidt, *Inventing Exoticism: Geography, Globalism, and Europe's Early Modern World* (Philadelphia: University of Pennsylvania Press, 2015).

[250] For a discussion of the naming of the Indian rhinoceros, see Antoine Francois Prévost, *Histoire generale des voyages,* Vol. 5 (Paris: Didot, 1748), 81.

[251] The letter was written on 31 August 1582, see entry no. 9256 in Voltelini, "Urkunden und Regesten," (1892), 129-30. Based upon the accompanying letter written by Khevenhüller it is unclear which objects were gifts and which were purchases. See also Pablo Jiménez, *Vztahy Španělska a čech a jejich doklady v rudolfinské kultůře* (Phd Dissertation: Charles University in Prague, 1996), 229n318. In regards to the emerald, see Karl Rudolf, "Exotica bei Karl V., Philipp II. und in der Kunstkammer Rudolfs II," *Jahrbuch der Kunsthistorischen Museum Wien* 3, 194. For the other objects, see Helmut Trnek, "Exotica in the Kunstkammers of the Habsburgs: Their Inventories and Collections," in *Exotica: The Portuguese Discoveries and the Renaissance Kunstkammer* (Lisbon: Calouste Gulbenkian Foundation, 2002), 46.

[252] Entry no. 9256 in Voltelnini, "Urkunden und Regesten," (1892), 130.

a most beautiful piece."[253] There is no mention of the other gifts. In Rudolf's inventory it is also singled out as a horn from an Indian beast given to the Emperor by the Empress.[254] It should be noted that the term "Indian" is used to denote its foreignness and is a term that was frequently used to describe things from faraway places, whether or not they actually originated in India.[255] Clearly this particular gift stood out, partly because of its previous illustrious owner—Rudolf's mother—but also because it was one of a kind.

This Chapter argues that the gifts of exotica—the parts of animals and their products—were animated, or became important for the people who exchanged them due to a combination of interrelated knowledge-producing practices, the artefacts' magical properties, and sometimes their biographies. In what follows, I address the activities that reinforced the interest in exotica, particularly their movement from Iberia into central Europe, processes that were fueled by increasingly more frequent contacts with the New World. I then discuss the representation of exotica in Rudolf's *Tierbuch*, the compendium of natural history that records paintings of animals and their products. Rudolf's collecting of exotica, along with its place in his *Kunstkammer,* is then related to the overall pursuit at Rudolf's court of the secrets of nature as recommended by Francis Bacon. The third part of this Chapter addresses the qualities and properties that animate the illustrated products of animals in the *Tierbuch*, particularly their biography, their medicinal magical properties, and finally their Christian association. Looking more closely at the

[253] The translation of this passage is published in Trnek and Vassallo e Silva, *Exotica: The Portuguese Discoveries*, 156.

[254] Entry no. 1: "*1 lang horn von asino indico von der kaiserin Ihr Mt: verehrt, mit rubin und perlen indianischer arbeit durchbrochen in gold gefast, geziert, in rot sametinem futral,*" Bauer and Haupt, "Das Kammerainventar," 5.

[255] J. Keating and L. Markey, "'Indian' Objects in Medici and Austrian-Habsburg Inventories: A Case-Study of the Sixteenth-Century Term," *Journal of the History of Collections* 23 (2010): 283–300.

representation of the natural artefacts, I suggest that the painted pictures of the rhinoceros horns, unicorn horns, and bezoar stones in Rudolf's *Tierbuch* operate between still-life representation and natural history. Finally, concluding with a discussion of their representation as 'exotic relics,' I demonstrate how the painted pictures betray their subjects' hidden or occult properties.

'*Quanta rariora tanta meliora*...': representing and studying exotica

The export of rarities to central Europe

As a result of the seafaring and colonizing efforts of the Portuguese and Spanish conquistadors, by the sixteenth century Europeans were increasingly coming into contact with foreign lands, peoples, and things. These encounters acted as an important impetus to early modern collecting of exotica on the part of Europeans.[256] By the first half of the seventeenth century Spain controlled territories ranging from the Americas to the East Indies in Asia, and from 1580 it controlled Portuguese territories, such as Malta and parts of North Africa. Lisbon functioned as port of entry into Europe and the goods and artefacts brought there on ships were dispersed first to Spain and then to the rest of Europe.[257] It should be noted that much of the material brought from the colonies was reserved for members of the Spanish crown, being made available to other royal courts

[256] Daston and Park, *Wonders*. See also Alessandro Tosi, "Wunderkammer vs. Museum? Natural History and Collecting during the Renaissance," in *From Private to Public: Natural Collections and Museums*, ed. Marco Bereta (Sagamore Beach: Watson Publishing International, 2005), 41–58; William B. Ashworth, "Remarkable Humans and Singular Beasts," in *The Age of the Marvelous*, ed. Joy Kenseth (Hanover, 1991); Antonio Barrera-Osario, *Experiencing Nature: The Spanish American Empire and the Early Scientific Revolution* (Austin: University of Texas Press, 2006).

[257] Pérez de Tudela and Gschwend, "Luxury Goods," 8.

and family members as gifts or purchases obtained at a very high price.[258] As Rudolf Distelberger explains, although Iberian courts could restrict the flow of goods from the Americas and Africa into the rest of Europe, knowledge of these things was circulating through the medium of print, which further encouraged the fascination with materials from the New World.[259] Therefore, as Pérez de Tudela and Gschwend explain, as the sixteenth century progressed exotica came to be viewed as the most exclusive (and expensive) of luxury goods, hard to come by and strictly reserved for princes and a select few who were ready to pay a high price.[260]

The role of agents who resided at Iberian courts was indispensable to the Austrian Habsburgs, whose access to exotica was geographically limited. Firsthand evidence of their fascination with these rarities is demonstrated in a letter from Emperor Maximilian II written to his agent at the Spanish court in Madrid, Adam Ditriechstein. Maximilian writes: "…in regards to Indian and other rarities…the rarer the better" […*was dan indianica et similia raria betreffen tuet… quanta rariora tanta meliora…*"[261]]. Indeed, the appeal of natural rarities was shared among all three generations of Habsburg emperors,

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[258] Trnek, "Exotica in the Kunstkammers," 39.

[259] Rudolf Distelberger, "'Quanta Rariora Tanta Meliora.' The Fascination of the Foreign in Nature and Art," in *Exotica. The Portuguese Discoveries and the Renaissance Kunstkammer* (Mainz: Zabern, 2001), 21. For sources that address the spread of knowledge in Europe about the so-called New World and its natural resources, see Joyce Appleby, *Shores of Knowledge: New World Discoveries and the Scientific Imagination* (New York: W. W. Norton & Company, Inc., 2013) and Peter Mancall, *Bringing the World to Early Modern Europe: Travel Accounts and Their Audiences* (Leiden: Brill, 2007).

[260] Pérez de Tudela and Gschwend, "Luxury Goods," 8.

[261] Letter from Maximilian II on 29 December 1572 to Adam von Dietrichstein, his ambassador at the Madrid court, as cited in Karl Rudolf, "Die Kunstbestrebungen Kaiser Maximilians II. im Spannungsfeld Zwischen Madrid und Wien: Untersuchungen zu den Sammlungen der Österreichischenund Spanischen Habsburger," *Jahrbuch des Kunsthistorischen Sammlungen in Wien* 55, 170n29.

that is, Emperor Ferdinand I, Maximilian II, and Rudolf II.[262] In order to obtain these highly sought after goods, many other royal courts also had representatives, or agents, residing at Iberian courts, whose primary goal was the acquisition of exotica for their patrons. Thus as Pérez de Tudela and Gschwend remark, in 1573 Albrecht V, the Duke of Bavaria (1528-1579) dispatched Anton Meyting; Juana of Austria used Portuguese merchants, Francisco de Lisboa, as well as her aunt, Catherine of Austria; Maximilian II had agents residing at the Madrid court, Adam von Dietrichstein and Wolf Rumpf; and Rudolf II relied upon his personal agent, Hans Khevenhüller, who had also worked for Maximilian II.[263]

The amount and types of goods that were sent to central Europe from Spain is demonstrated by special licenses, or *cédulas*, which provide information about the shipments that were exempted from import and export duties.[264] Therefore, as the *cédulas* demonstrate, besides horns of foreign animals other types of things perceived as exotic and collected by central European rulers included the following: foreign animals, plants, minerals, precious stones, and parts or products of animals (e.g. skeletons, bones, bezoar stones, horns, nautical shells, teeth and skins). Objects produced from materials originating in foreign lands were also of interest and included things like scented gloves,

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[262] Pérez de Tudela and Gschwend, "Luxury Goods," 8. For a discussion of the collecting of exotica by Rudolf and other central European rulers see, Trnek, "Exotica in the Kunstkammers," 39–67. See also H. Trnek and S. Haag, *Exotica: Portugals Entdeckungen im Spiegel Fürstlicher Kunst- und Wunderkammern der Renaissance* (Mainz: Zabern, 2001).

[263] Pérez de Tudela and Gschwend, "Luxury Goods," 8. As the authors explain, a network of agents with connections to people who had access to exotica was necessary in order to have access to these products.

[264] As Pérez de Tudela and Gschwend explain, "…all gifts and objects entering or leaving Spain, deemed by the crown to be exempt from import/export duties, were compiled in lists called *memoriales*, for which permits, or *laissez-passer (licencias de pasos)*, were issued, on order for these goods to safely enter and exit the various Castilian frontiers and ports of Valencia, Aragon, and Catalonia, on their way from France, the Netherlands, and Northern Europe," "Luxury Goods," 2-3.

fabrics, porcelain, laces, jewelry, carved and embellished vessels, books, weapons and armour. Some of these rarities were also used and collected for their medicinal uses against epidemics, plagues, and poisons, which in turn further encouraged their accumulation, study, and use.[265]

Based on the *cédulas*, the frequency of shipments between 1560 and 1612 may also be discerned. Throughout this period shipments were at least annual but during particular years at least ten separate deliveries were dispatched. Shipments were more regular during the 1560s and 1570s and peak in number during the mid-1590s. They become increasingly rare during the first decade of the seventeenth century. The most frequent goods to be sent were gloves (scented and unscented and decorated with gold trim) followed by amber, porcelain, and vessels of gold, silver, and mother of pearl. Animals were the second most popular category and include creatures such as hawks, greyhounds, hunting dogs, parrots, birds of paradise, monkeys, wild cats, horses, mules, lions, and tigers. Products of animals include bezoar stones, horns, bones of animals, nautical shells, leather, skins, fur, musk, and teeth of animals. Furniture, especially writing desks and beds were also dispatched on a regular basis. Vessels of precious materials, such as agate, tortoise shell, jasper, rhinoceros horn, coconut, and crystal also appeared frequently. Armour and weapons, such as swords, blades for swords, shields and full armour also recur in the shipments to central Europe. In terms of jewelry, the

[265] See for example Marcia Stephenson, "From Marvelous Antidote to the Poison of Idolatry: The Transatlantic Role of Andean Bezoar Stones During the Late Sixteenth and Early Seventeenth Centuries," *Hispanic American Historical Review* 90 (2010): 7. For medicinal properties of so-called "marvelous therapeutics," see Lorraine Daston and Katharine Park, "Marvelous Particulars" in *Wonders*, 137–146. See also Harold J. Cook "Physicians and Natural History," in *Cultures of Natural History*, ed. Nicholas Jardine, James Secord, and Emma Spary (Cambridge: Cambridge University Press, 1996), 91–105; Ibid., "Medicine," in *The Cambridge History of Science, vol. 3: Early Modern Europe*, ed. Katharine Park and Lorraine Daston (Cambridge: Cambridge Univ. Press, 2006), 407–434; Ibid., *Matters of Exchange, Commerce, Medicine, and Science in the Dutch Golden Age* (New Haven: Yale University Press, 2007).

cédulas mention headdresses, gold buttons, pendants, emeralds, pearls, sapphires, rubies, amber, and golden chains. Fabrics of all kinds, particularly silk are also mentioned. Finally miscellaneous objects, including purses, blankets, quilts, cases, fans, silk stockings, felt hats, containers for wine, portraits, books, laces, and paintings of animals were also shipped.[266]

The *cédulas* often mention whether the shipped goods were presents, demonstrating that gifts from the Spanish House of Habsburg to the Austrian Habsburgs were not a rare occurrence. In most cases, the more valuable things were used as gifts, and once they reached their destination they became part of the *Kunstkammer* collection, while animals were added to the menagerie.[267] I should add that certain goods, such as gloves, laces, buttons and fabrics were not intended for the *Kunstkammer*, but were used for utilitarian purposes. Due to their less durable nature, few of these have survived, but a record of their existence may be viewed in courtly portraits, such as the famous portrait of Rudolf II by Hans von Aachen, painted in 1605. In this portrait Rudolf is portrayed wearing the latest Spanish fashion that was popular at the imperial court and that would have been sent to him from Spain.[268] The effort to have jewelry and latest fashion from Spain recorded for posterity in portraits suggest that these things were held in great esteem and were enjoyed and valued above what may have been obtained more locally and also points to the fascination with things foreign.

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[266] See Pérez de Tudela and Gschwend, "Luxury Goods," 24-127.

[267] Ibid., 6-7.

[268] Jos Luis Colomer and Amalia Decalzo, ed., *Spanish Fashion at the Courts of Early Modern Europe: The Prevalence and Prestige of Spanish Attire in the Courts of the 16th and 17th Centuries* (Madrid: Centro de Estudios Europa Hispánica, 2014).

As the *cédulas* make clear, a variety of goods and objects were frequently sent from the Iberian Peninsula to Rudolf II in central Europe. Of these, however, horns of beasts and bezoar stones were the most numerous. The fact that some of these natural rarities were painted in Rudolf's *Tierbuch* alongside animals from which they were purportedly taken, suggests that as artefacts from the natural world their known origin was important and they should be considered in relation to the compendium more generally.

Rudolf's *Tierbuch*: Codex Miniatus 129 and 130

The *Tierbuch* is a very unusual compendium that escapes categorization. As a whole it speaks to the great variety of nature's creation and to the interest at Rudolf's court in documenting and studying nature. However, the *Tierbuch* is not an overview of nature, a zoological manual, nor strictly a compendium of natural history. Thea Vignau-Wilberg has suggested that the *Tierbuch* functions as a sample of natural *mirabilia*, drawn from the natural history collections of Rudolf II.[269] We know that Rudolf received many animals from Spain, thus the *Tierbuch* could also be considered as a record of the animals that would have occupied his menageries.

Rudolf maintained the menagerie established by Emperor Maximilian II at Ebersdorf, Naugebau near Vienna, and also one at Prague, which included lions,

[269] Vignau-Wilberg, "Le 'Museum de l'empereur Rodolphe II' et les cabinets des arts et curiosités," in *Le Bestiaire*.

leopards, eagles, and many species of birds.[270] It is likely that the imperial menagerie at one time held an antelope on its premises, as suggested by Fröschel's inventory where the author notes a small skull with the twisting horns of an antelope. The convincing representation of the same animal in the *Tierbuch* on folio 21 suggests that the subject may have at some point been a member of the menagerie (Fig. 20).[271] It seems that Rudolf also owned a dodo bird that had after its death been preserved and described in the same inventory as follows: "A stuffed Indian bird in the description of Caroli Clussi called *walghvogel* by the Dutch, has a large round body, about the size of a goose or larger, a large unshapely beak, little wings, as it could not fly, dirty whitish colour."[272] Before it died the dodo had been recorded for posterity in the *Tierbuch* in folio 31 (Fig.

[270] For a discussion of Rudolf's menagerie, its layout and content, see Vignau-Wilberg, "Museum de l'empereur Rodolphe II," 31, 44-45. For a discussion on the importance of menageries for princes, see Marina Belozerskaya, "Menageries as Princely Necessities," in *Oudry's Painted Menagerie: Portraits of Exotic Animals in Eighteenth-Century Europe* ed. by Mary Morton (Los Angeles: Getty Publications, 2007), 59–74, for Rudolf II's interest in animals see particularly 66-69. See also C. Gomez-Centurion, "Treasures Fit for a King: King Charles III of Spain's Indian Elephants," *Journal of the History of Collections* 22 (2009): 29–44. For an account of the gift of an Asian elephant, beloved by the Vienese, sent from Juan III, King of Portugal and his wife Catherine of Austria to Maximilian II, see K. Saurer K and E. M. Hinshaw-Fischli, "They Called Him Suleiman. The Adventurous Journey of an Elephant From the Forests of Kerala to the Capital of Vienna in the Middle of the Sixteenth Century," in *Maritime Malabra and the Europeans*, ed. Mathew K.S, (Curagon, 2003), 153-164 and Annemarie Jordan Gschwend, *The Story of Süleyman: Celebrity Elephants and Other Exotica in Renaissance Portugal 2010* (Philadelphia: Pachyderm, 2010).
Rudolf's menagerie was not a unique phenomenon; all throughout the Middle Ages and into the early modern period, rulers frequently established menageries of local and exotic animals, which symbolized their power over nature. See for example Mason, *Before Disenchantment*; Claudia Lazzaro, "Animals as Cultural Signs: Collecting Animals in Sixteenth-Century Medici Florence," in *Grasping the World: The Idea of the Museum*, ed. Donald Preziosi and Claire Farago (Aldershot: Ashage Publishing Company, 2004), 500–525; Almudena Pérez de Tudela and Annemarie Jordan Gschwend, "Renaissance Menageries. Exotic Animals and Pets at the Habsburg Courts in Iberia and Cenral Europe," in *Early Modern Zoology: The Construction of Animals in Science, Literature and the Visual Arts*, ed. Karl A. E. Enenkel and Paul J. Smith (Leiden: Koninklijke Brill NV, 2007), 419–447.

[271] Illustrated in Cod. Min. 129. Entry no. 33, Bauer and Haupt, "Kunstkammerinventar," 5.

[272] Entry no. 135 in Bauer and Haupt, "Kunstkammerinventar," 9-10, as cited in Bukovinská, "Known and Unknown Kunstkammer," 216. See also Julian P. Hume, "The History of the Dodo Raphus Cucullatus and the Penguin of Mauritius" *Historical Biology* 18 (2006), 72.

21).[273] The *Tierbuch* is thus site specific; that is to say, it is not a general book of natural history, but depicts animals that were either in existence in Rudolf's menagerie, or were animals that the Emperor especially wished to possess. Furthermore, the fact that the two volumes of the *Tierbuch*—painted in oil on parchment, no less—were kept in the *Kunstkammer* proper suggests that it was considered to be a work of high aesthetic quality.[274]

In the inventory of Rudolf's Kunstkammer, Daniel Fröschel describes the *Tierbuch* as "His Majesty's book of animals with all manner of four-footed beasts, all painted in oil after life by Dieterich Raffenstein, on parchment, bound in red leather."[275] The entry that follows describes the second volume, Cod. Min. 130, as "[a] book of birds that also includes fish and other reptiles."[276] From these brief descriptions, we learn that the depictions of creatures in the *Tierbuch* were painted "after life." Of course this does not necessarily mean that the artist had seen the animal first hand. As Claudia Swan demonstrates, the notion of being painted "after life," or *ad vivum*, merely credited the image with a certain element of authority, declaring that it was a reliable approximation of reality.[277] We also learn the identity of its creator: an artist by the name of Dirk de Quade van Ravensteyn (1565-1620), a court painter at Rudolf's court between 1589 and

[273] Illustrated in Cod. Min. 130. Today bones from a dodo bird are held at the National Museum in Prague, and are generally believed to have belonged to the dodo bird in Rudolf's menagerie, Bukovinská, "Known and Unknown Kunstkammer," 216-18; Vignau-Wilberg, "Le Museum de l'empereur Rodolphe II," 44-49.

[274] The *Tierbuch* was kept in chest no. 96, Ibid., 79-80.

[275] See entry no. 2688 in Bauer and Haupt, "Kunstkammerinventar," 135 and Jolyon C. Parish, *The Dodo and the Solitaire* (Bloomington: Indiana University Press, 2012), 180.

[276] See entry no. 2689 in Bauer and Haupt, "Kunstkammerinventar," 135.

[277] See Claudia Swan, "Approximating Nature "from the life," in *Art, Science, and Witchcraft in Early Modern Holland: Jacques de Gheyn II (1565-1629)* (Cambridge: University of Cambridge, 2005), 29-65.

1608.[278] However, due to the variety of styles and the quality of the paintings of animals, at present the authorship of Rudolf's *Tierbuch* is debated. It is believed that Fröschel himself, possibly along with others, may have contributed to the *Tierbuch*'s creation.[279]

The majority of the subject in the *Tierbuch* is restricted to foreign, domestic, and mythical animals—the last referring to animals such as the unicorn, sea unicorns, dragons, and a basilisk. The animals are represented on the *recto* of each sheet of parchment with the *verso* left blank. In most cases, a single animal is portrayed on a floating grassy green turf; in other examples two animals are painted on a single page, one above the other. At times, some creatures are presented in what would have been perceived as their natural environment. For example, in folio 49 a common squirrel monkey is portrayed sitting on a tree branch, and folio 13 depicts two sea unicorns in swimming in a body of turbulent water (Fig. 22).[280]

The fact that many of the finely painted representations of animals come across as portraits is noteworthy. This is particularly the case with the introductory folio that presents a family portrait of the family of Petrus Gonsalus, a man with the genetic condition today called hypertrychosis, or Ambras syndrome (a condition in which the afflicted person is covered from head to toe with hair, especially in the face).[281] The

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[278] Lee Hendrix, "Natural History Illustration at the Court of Rudolf II," in *Rudolf II and Prague*, 163.

[279] For a detailed discussion about the authorship of the *Tierbuch* see, Vignau-Wilberg, "Museum de l'empereur Rodolphe II," 54-9. See also Kaufmann, *Arcimboldo: Visual Jokes*, 182.

[280] Illustrated in Cod. Min. 129.

[281] Petrus Gonsalus was born in the Canary Islands and brought to the French court in 1556 as a curiosity of nature and adopted by the King of France. He married and lived at the court of Margaret of Austria, the Duchess of Parma, see Christiane Hertel, "Hairy Issues: Portraits of Petrus Gonsalus and His Family in Archduke Ferdinand II's Kunstkammer and Their Contexts," *Journal of the History of Collections* 13 (2001): 9.

inclusion of Gonsalus and his family (his wife and two daughters) coincides with the compendium's larger interest in monsters, or caprices of nature (Fig. 23); that is, creatures exhibiting some type of anomaly outside the realm of nature's regularity.[282]

In general the pictures in the *Tierbuch* that present animal parts are organized so that they follow the painting of the animal from which they were believed to have originated. For example, folio 10 of the rhinoceros parts is preceded by a full-page painting of a rhinoceros. Another full-page painting follows folio 10, this time of a unicorn, which is in turn followed by the picture of the two rhinoceros horns described in the introduction. This organization suggests that at the time of the *Tierbuch*'s creation, and despite the fact that in the written inventory Fröschel clearly states that the horns are from a rhinoceros, there must have been some uncertainty about the true origin of the two rhinoceros horns painted in folio 10. A similar logic is demonstrated in the placement of the folio that depicts three bezoar stones and a horn of the pronghorn (Fig. 24). The page that precedes it (folio 16) pictures two American pronghorns—one female and one male, thus implying that the bezoars and the horn came from such creatures (Fig. 25). Framing the paintings of the animal parts with depictions of animals from which these parts would have been taken not only lends credibility to the origin of the artefacts depicted; the idea of representing the part in relation to the whole is also something that brings to mind relics that were often accompanied by a portrait of the saint from which the relic was

[282] Sylvia Ferino Pagden, "Arcimboldo as Counterfeiter of Nature," in *Arcimboldo: 1526-1593* (Wien: Skira, 2007), 110. Other examples of the interest in caprices of nature, as displayed in the *Tierbuch*, include a three-legged chick (Cod. Min. 130 fol. 76r), a rabbit with a partially formed siamese twin attached to its torso (Cod. Min. 129 fol. 58r), a two-headed pigeon (Cod. Min. 130 f. 61r), and a domestic goose with a deformed foot and a large growth on its neck (Cod. Min. 130 fol. 67).

believed to have been taken. This is something that is addressed more fully later in the Chapter.

The particular ordering of the folios in the *Tierbuch* also points to knowledge about the animals themselves. Preceding the folio that presents two unicorn horns is the folio with the two unicorns swimming in water (Fig. 26). This ordering addresses the legend of the unicorn and the newly found knowledge that the unicorn horns represented on the following folio may have belonged to an animal that lives in the sea.[283] However, since the narwhal whale was still unknown to most, and its existence was in many ways speculative, the artist had to rely on his inventive faculties. We are thus presented with a hybrid beast with a horse-like head, a long horn protruding from its forehead, webbed front feet, and the tail of a fish. Another version of a sea unicorn is pictured towards the back of the painting. This one is a carnivorous-looking being with a short stubby horn.[284] Folio 13 of the sea unicorns thus speaks to the hybridization of fact and tradition, creating a dialogue between emerging and existing knowledge. The inclusion of representations of these mythical creatures clearly illustrate that the former is gaining value at the beginning of the seventeenth century, while the latter still has a stronghold in the communal imagination.

Considering the realistic depiction of many of the animals, it is clear that Rudolf must have owned some of the represented animals in his menagerie; another possibility is that the contributing artists relied on previously executed nature studies, particularly Cod. Min. 42. This compendium was assembled over a period of a few decades in Vienna and

[283] Illustrated in Cod. Min. 129.

[284] Staudinger, *Bestiaire*, 120.

Prague (1550-1612), and presents animals and plants painted in gouache on individual pieces of paper and parchment that have been cut and glued to bigger pages and then bound. It includes contributions from several artists, including Giuseppe Arcimboldo, Hans Hoffmann, Georg Hoefnagel, Simon Mormion and Daniel Fröschel.[285] Notably, many of the studies in Cod. Min. 42 served as the basis for the animals depicted in the *Tierbuch*. For example, the three-footed chick in folio 46 and the red flanked duiker in folio 19 were both used as models for folios 76 and 25 of the *Tierbuch*, respectively.[286] Some studies from Cod. Min. 42 were also used by court artists to produce larger paintings, such as the painting of the duiker and of the black buck (fol. 23) used in Hans Hoffman's *Expulsion from Paradise* (1589/90).[287] The fact that many of the paintings derive from previously executed studies, like the painting, highlights the *Tierbuch*'s status as a work of art in its own right.

Not all the paintings of animals in the *Tierbuch* are accurate or convincing depictions of actual animals. Whether this is the result of multiple artists of varying talents contributing to its creation is up for analysis. However, in some pictures it is clear that the artist had never seen the animal that was being painted, and this is not only so in the case of the folios that present mythical creatures. For example, the pronghorn in folio

[285] Pagden, "Arcimboldo," 159.

[286] See ibid., 110 and 112. As illustrated in Cod. Min. 130 and 129 respectively. See Manfred Staudinger, *Bestiare*, 441, 147.

[287] Cod. Min 42 can thus be described as having served as a reference for artists at Rudolf's court and a source of exchange of knowledge on natural history between the Prague court and a famous naturalist. See Vignau-Wilberg, "Museum de l'empereur Rodolphe II," 39-44; Pagden, "Arcimboldo," 103–111; Kaufmann, *Arcimboldo: Visual Jokes*, 182-183. Some of the studies in the codex under consideration were also copied and sent by Franciscus Paduanus to the naturalist Ulisse Aldrovandi in Bologna, who turned them into woodblock prints, see Manfred Staudinger, "Arcimboldo and Ulisse Aldrovandi," in *Arcimboldo: 1526-1593*, ed. S. F. Pagden (Milan: Skira, 2008), 113–117. Thomas DaCosta Kaufmann identifies studies in Cod. Min. 49 that were done by Arcimboldo, *Arcimboldo: Visual Jokes*, 122-147.

16 is leering at the viewer in a similar manner as the two sea unicorns in folio 13. In the former the pronghorn's facial features are curiously anthropomorphic and the convincing naturalism of the majority of the paintings in the *Tierbuch* appears absent. The fact that Rudolf did not own a pronghorn in his menagerie, but did have its horn is attested to by the horn's depiction in folio 17 and also its mention in Fröschel's inventory, where the author describes it as "a small black horn, of which Carolus Clusius said came from a bezoar beast."[288] The fact that Fröschel relies on the authority of Carolus Clusius rather than his own suggests that he was not familiar with the animal. Furthermore, similar to the function of the unicorn and sea-unicorns that frame their constituent parts, the "bezoar beasts" attest to the origin of the bezoar stones, pictured on the folio that follows.

It should be emphasized that the paintings in the *Tierbuch* are very different from Cod. Min. 42 and all other nature studies that were owned by Rudolf II.[289] Overall, the paintings in the *Tierbuch* come across as very painterly and most are very carefully executed; that is, they are presented for visual pleasure and not only for informative purposes of study. This is evinced by the thick layers of oil paint used all over the parchment surface, lending contrast to the depicted animals. Furthermore, the folios that portray products of animals are presented in a manner that is highly reminiscent of still life paintings. They suggest depth through the use of a darkened background and place emphasis on surface qualities of the objects being presented, as discussed in more detail later in this Chapter.

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[288] Entry no. 42 in Bauer and Haupt, "Kunstkammerinventar," 6, as cited in Ibid., 128.

[289] For a discussion of the most important illustrated natural history treatises in Rudolf's collection, see Hendrix, "Natural history illustration," 157-171 and Kaufmann, *Arcimboldo: Visual Jokes*, 149-164.

Rudolf's *Kunstkammer*: the pursuit of knowledge and natural magic

Rudolf's effort devoted to accumulating natural rarities in his *Kunstkammer* is visually alluded to in the *Tierbuch*. For example, in addition to folio 12, which presents the two rhinoceros horns, folio 10 pictures an assortment of other rhinoceros parts: a tusk, a tooth, a piece of skin, and a cup with a lid carved from a horn (Fig. 27).[290] Other parts of animals that are known to have been included in Rudolf's collection include the two unicorn horns pictured in folio 14, the three bezoars and a pronghorn in folio 17, and a skeleton of a dragon in folio 68 (in reality this was a skeleton of a cat that had had its legs removed and to which wings were attached) (Fig. 28).

The interests in the accumulation and representation of the natural world, as evinced in the *Tierbuch*, should be understood in relation to Rudolf's collecting initiatives and material engagement with the natural world more generally.[291] As discussed in the introduction of this dissertation, Rudolf's collecting and patronage activities in the arts and sciences conformed to courtly interests in the secrets of nature and in the accumulation of knowledge in princely *Kunstkammern* of the period (for example, as demonstrated by his Habsburg predecessors Maximilian II and Ferdinand I). However, Rudolf's cultural pursuits diverged in the breadth and extent of his interests, particularly his encyclopedic and systematically organized *Kunstkammer* of *naturalia*, *artificilia*, and

[290] See Staudinger for a list of entries in Fröschel's inventory that correspond to specific depictions of things in the Rudolf's *Tierbuch*, *Bestiaire*, 490.

[291] Literature on this topic is vast and continues to grow. For an outline of the most important literature from the twentieth and twenty-first century, see Bukovinská, "Kunstkammer of Rudolf II," 199–227. Ibid., "Kunstkomora Rudolfa II.,"121–145. Ibid., "Die Kunst- und Schatzkammer Rudolfs II," 59–62; Fučíková, "Collections of Rudolf II in Prague," 47–53. Ibid., "Die Sammlungen Rudolfs II," 209–46. Ibid., "Zur Konzeptionen der Rudolfinischen Sammlungen," 59–62; Kaufmann, "Remarks on the Collection of Rudolf II," 22–28. Ibid., "Mastery of the World," 174–94.

scientifica that had as its primary goal the accumulation of knowledge in order to uncover nature's secrets, as mentioned in the introduction of this dissertation.[292]

The content and display of Rudolf's *Kunstkammer*, as it is described in three surviving inventories, was unlike other *Kunstkammern* in central Europe. While Rudolf's collection was carefully stowed in chests and cabinets, the collections of Rudolf's uncle, the Archduke Ferdinand II of Tyrol, at Ambras Castle, and the *Kunstkammer* of the Wittelsbach Dukes in Munich were organized in such a manner that allowed the visitor to more easily see the wealth of the collection.[293] In other words, these collections had the primary function of promoting the status of the collector and readily displayed the splendor and variety of its contents.[294] The fact that most of the artefacts in Rudolf's collection were not immediately visible to the viewer suggests that it supported a more active engagement with nature and its secrets, rather than a passive viewing, as discussed in more detail below. Considering the paintings of animal parts as they appear in Rudolf's *Tierbuch* in relation to Rudolf's *Kunstkammer* and his support of the occult arts allows us to also better apprehend how these artefacts may have been perceived.

As Eliška Fučíková has suggested, the fact that the artefacts in Rudolf's *Kunstkammer* were stored in chests implies that the imperial collection was not attempting to fulfill a representational function as its primary goal, celebrating the wealth

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[292] Some sources on the scientific aspects of Rudolf's collecting are as follows: Ibid; Joaneath Spicer, "Referencing Invention and Novelty in Art and Science at the Court of Rudolf II," in *"Novità" Neuheitskonzepte in den Bildkünsten um 1600*, ed. U. Pfisterer and G. Wimböck (Zürich: Diaphanes, 2011), 401–424; Anthony Grafton, "Humanism and Science in Rudolfine Prague: Kepler in Context," in *Defenders of the Text: The traditions of Scholarship in an Age of Science, 1450-1800* (Cambridge: Harvard University Press, 1991), 178–203.

[293] Bukovinská, "Kunstkomora Rudolfa II.," 121-45; Trnek, "Exotica in the Kunstkammers," 55-60.

[294] Fučíková, "Die Sammlungen," 237; Neumann, "Das Inventar," 262–65.

and knowledge of its creator in the process. Rather, as Fučíková posits, the *Kunstkammer* was more a place of study and research.[295] Following Fučíková's argument, Beket Bukovinská has elaborated that in order to inspect a particular object, some prior knowledge of the artefact was necessary. This is because many artefacts in the *Kunstkammer* were stored in numerous chests based on their materials. Familiarity with the organization of the *Kunstkammer* would thus be require in order to make use of its content. In this way passive viewing of Rudolf's *Kunstkammer* was less likely. Those who accessed the imperial collection—particularly court artists and other scholars patronized by Rudolf—would have done so in order to view or study a particular artefact that they could then use in their work.[296] As mentioned above, artists such as Hans Hoffman used previously executed nature studies of animals from Cod. Min. 42 as references for larger paintings. The mineralogist, Anselmus Boetius de Boodt also made use of Rudolf's collection, particularly his collection of minerals for his publication *Gemmarum et Lapidum Historia*, as discussed in Chapter Three of this dissertation. Thus it could be said that items in Rudolf's *Kunstkammer* could function as references and tools for various material practices.

Kaufmann has complicated the above understanding of Rudolf's *Kunstkammer,* arguing that while it may have served the purpose of private study, the collections did in fact play an important diplomatic function. As discussed in Chapter Two diplomats were at times taken there during stately visits, something that was considered to be a great sign

[295] Fučíková, "Die Sammlungen,"237.

[296] Bukovinská, "The Known and Unknown *Kunstkammer*," 214; Bukovinská, "Kunstkomora Rudolfa II.," 121–145.

of favor on the part of the Emperor.[297] Following Kaufmann, while Rudolf's *Kunstkammer* diverged from those of his contemporaries in terms of display and organization, it also fulfilled the function of representation when the occasion arose. Overall, it should be remembered that at the center of Rudolf's collecting program was the quest for knowledge about the world, which by means of the *Kunstkammer* could be accumulated, studied, celebrated, and transformed.

As I demonstrated in Chapters Two and Three of this dissertation, the notion of transformation is something that was at the heart of the interrelated artistic and scientific pursuits into the secrets of nature at Rudolf's court. A successful transformation of materials implied a full understanding and mastery of their properties and involved the uncovering of their hidden virtues. In this way the transformation of a piece of stone into a work of art that obfuscated what is nature and what is human intervention functioned as proof that nature had been surmounted, its secrets made manifest. Firmly related to Rudolf's interest in these material pursuits was also his patronage of the occult. He was particularly fond of alchemy, which coincides with the late renaissance interest in natural history and natural magic, as discussed in the introduction of this dissertation. Natural magic and the study of the occult had by the sixteenth century become associated with the active part of natural knowledge because magic performed marvelous effects that could

[297] See Chapter Two, 31. Kaufmann, "Remarks on the Collection of Rudolf II," 22. Kaufmann mentions several people who were shown Rudolf's Kunstkammer.

not be explained because they were hidden, or occult.[298] Thus, what for us may seem like an interest in alternative forms of rationality, during the time of Rudolf II the pursuit, practice, and study of natural magic, or its effects, constituted a perfectly legitimate and longstanding activity that sought to uncover the secrets of nature.

The history of natural magic or the occult is complex and beyond the scope of this Chapter; however, in general it should be noted that knowledge about occult processes had developed during the classical period and was passed to Europeans through Arabic texts during the twelfth and thirteenth centuries.[299] Natural magic was believed to differ from demonic magic because it implied approbation and was rooted in the study of natural philosophy, which sought knowledge through the active examination and study of nature. Around the same time natural magic was placed within the purview of the natural world by scholastic thinkers such as William of Auvergne and others.[300] For Heinrich Cornelius Agrippa von Nettesheim (1486-1535), the renowned German physician and

[298] For alchemy at Rudolf's court see Purš and Karpenko, *Alchymie a Rudolf II.* The English edition, *Alchemy and Rudolf II. Searching for the secrets of nature in Central Europe in the 16th and 17th centuries* is forthcoming. For Rudolf's patronage of natural history and alchemy more specifically, Ivo Purš, "Přírodovědný a alchymický mecenát císaře Rudolfa II," in Ibid., 139–204; for natural philosophy and its relationship to painting, see Kaufmann, *Arcimboldo: Visual Jokes*, 115–147, and William A. Wallace, "Natural Philosophy: Traditional Natural Philosophy," in *The Cambridge History of Renaissance Philosophy,* ed. Quentin Skinner et al. (Cambridge: Cambridge University Press, 1988), 199–235. For a discussion on medieval magic, see Richard Kieckhefer, "The Specific Rationality of Medieval Magic," *The American Historical Review* 99 (1994): 818-819. For a discussion of natural magic and science, see Wayne Shumaker, *Natural Magic and Modern Science: Four Treatises, 1590-1657* (Binghampton: Center for Medieval & Early Renaissance Studies, 1989).

[299] Such as *Picatrix*, as it is known in Latin, a book on occult magic and astrology written in Arabic in the 11th century and translated into Latin in the 13th century, see David Pingree, ed., *Picatrix: The Latin Version of the "Ghayat Al-Hakim"* (London: Warburg Institute, University of London, 1986).

[300] Others important contributions include Albertus Magnus and Roger Bacon, see Kieckhefer, "Medieval Magic," 819 and Lynn Thorndike, *History of Magic and Experimental Science* (New York: The Macmillan Company, 1923).

philosopher, magic was "the pinnacle of natural philosophy and its most complete achievement."[301] Agrippa adds that

> "with the help of natural virtues, from their mutual and timely application, [natural magic] produces works of incomprehensible wonder.... Observing the powers of all things natural and celestial, probing the sympathy of these same powers in painstaking inquiry, it brings powers stored away and lying hidden in nature into the open."[302]

Thefore, hidden powers, or effects of marvelous phenomena, such as those caused by special herbs and stones, were attributed to natural causes that worked through hidden virtues, sympathies and antipathies, astral forces and psychological powers.[303] Agrippa's emphasis on observation—as the natural historian who is seeing for himself—not only coincides with the early modern approach to knowledge that was increasingly oriented toward active observation of things, rather than only through traditional, predominantly textual, authorities. For Agrippa, the act of "observing the powers of all things" in "painstaking inquiry" would reveal the thing's stored powers that when uncovered could be used for the betterment of the world.

At Rudolf's court, it is exactly this active examination of nature, emphasized by Agrippa, which was at the center of all the artistic and scientific pursuits that collided within the space of the *Kunstkammer*. In Chapter Two of this dissertation I elaborated upon the ubiquitous interest among European early modern rulers in establishing large collections of artefacts. I did so by drawing attention to three works authored independently of each other, namely by Samuel Quiccheberg, Daniel Kaltermarckt, and

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[301] Brian P. Copenhaver, "Magic," in *The Cambridge History of Science, vol. 3: Early Modern Europe*, ed. Katharine Park and Lorraine Daston (Cambridge: Cambridge University Press, 2006), 518–540.

[302] Ibid.

[303] Kieckhefer, "Rationality of Medieval Magic," 523–54.

Francis Bacon. As discussed, each offered advice to three different rulers on how to assemble the ideal collection, and elucidated upon the necessity of rulers having grand collections that included objects from all parts of the known world. In general, the authors emphasized the many benefits the creation and maintenance of a *Kunstkammer* would bring to a monarch's rule. What was not addressed in the second Chapter is the fact that Bacon's program, as outlined in the speech of the second counselor to the King of Purpoole, has been singled out as being particularly reminiscent of the approach taken by Rudolf in Prague with regards to his collecting and pursuit of the arts and sciences.

As Kaufmann and Fučíková have noted, the notion (as recommended by Bacon) that a monarch should strive to control the secrets of the world relates to the utilitarian and scientific side of collecting as it was practiced among central European courts, but especially at the court of Rudolf II, where to a significant extent scientific and artistic investigations were mixed with the occult and the esoteric.[304] Kaufmann elaborates on this further in relation to Bacon's larger contributions to the history of science, stating that "Bacon's ideal for the role of science in society accordingly envisages not a private occupation but an all-encompassing program for a new sort of polity to be put into effect by a ruler. The attraction of this program for the prince is that the knowledge he would thereby gain would increase his power over the world."[305] Within this context, knowledge meant access to the secrets of nature, which according to Bacon would make any ruler all-knowing and all powerful, allowing him to reign justly and effectively.[306]

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[304] See Fučíková, "Die Sammlungen," 209–46, especially 244-246; Kaufmann, "Mastery of the World," 174–94.

[305] Ibid., 185.

[306] Paulo Rossi, *Francis Bacon: From Magic to Science* (Chicago: University of Chicago Press, 1968), 3.

Indeed, Rudolf's program in Prague seems to conform to the initiatives of knowledge accumulation and production. These activities came to life in the collecting of artefacts that originated in all corners of the world then known to Europeans, as well as in the patronage of various arts and sciences, especially those that promised to uncover the secrets of nature. Rudolf's extensive interest in, and patronage of, the occult and of alchemy more particularly has in the past been used to promote the view that the Emperor was in some way deranged and could not see the difference between the state of affairs around him and his *Kunstkammer*.[307] However, when seen in relation to the general interests of this period, we can see that Rudolf's interests and pursuits in natural magic played a key role in his political life and participated in the complexity of early modern knowledge production, as it was similarly practiced at various early modern courts across Europe. What made Rudolf unique was the fervor with which he pursued his artistic and scientific interests.

In summation, Rudolf's fascination with exotica—or natural rarities that were at times embellished through artifice—was fuelled by a combination of entangled interests and processes. These include European encounters with foreign lands, the contemporary interest in natural history and its study (as exhibited in compendiums such as Rudolf's *Tierbuch*), the practice of collecting, and limited access to these goods (which made them all the more appealing).

[307] For an overview of literature on this topic see Findlen, "Cabinets, Collecting and Natural Philosophy," 209–219. In the twentieth century this incomplete view of Rudolf's interests was expounded by: Bolton, *The Follies of Science*; Schlosser, *Die Kunst-und Wunderkammern*.

Animation of things

Biography, *materia medica*, and the Christian association

While the mutually reinforcing interests in the material world addressed in the preceding section illuminate the appeal of exotica, or animal parts, that were collected and represented in Rudolf's *Tierbuch*, they do not address the artefacts directly. What animated certain exotic objects pertains to the artefact's specific magical/medicinal properties, in some cases the artefact's biography, and its association with the Christian tradition.

The folios that present pictures of animal parts suggest a quality and a presence that exceeds the objects' mere representation. This is particularly true of the folios that depict the unicorn horns and the three bezoar stones and horn of a pronghorn mentioned earlier. These folios present actual objects and their physical qualities, as they would have been seen at the time of their painting. While the majority of animals painted for the *Tierbuch* were done after previously executed nature studies (which as I have noted bring together a whole range of nature drawings that had accumulated in Rudolf's collection over time), the paintings of animal parts, or products, were literally painted *ad vivum* based upon artefacts contained in Rudolf II's *Kunstkammer*. What animates these pictures is not only the fact that they were—and some still are—extant artefacts that came from foreign lands. What gives these images life is the fact that they portray unique individual pieces, many of which were gifts of especially coveted and priceless artefacts that were bearers of special hidden powers.

The known biography of the artefacts in the two folios of Rudolf's *Tierbuch* that present the two rhinoceros horns and the other that pictures the two unicorn horns, serves to further animate their presence. The painting of the decorated rhinoceros horn that had been given to Rudolf II by his mother is an important artefact that I already discussed in the introduction of this Chapter. As I demonstrated, its appeal was tied to the fact that it was a gift from the Empress, which as indicated in the letter that Rudolf wrote to his ambassador who sent the artefact, pleased the Emperor greatly. Its great size and beautiful decoration of gold and jewels added to its attraction. The painting of the two unicorn horns also references a known artefact. The long, thin unicorn horn situated towards the bottom of the page in folio 14 is a representation of one of the most valued objects in Rudolf II's *Kunstkammer*; it also heads the only surviving inventory of the Emperor's *Kunstkammer* taken during his reign.[308] It depicts the inalienable unicorn horn that was passed down through Habsburg generations and was part of the treasure of the House of Austria. It entered Habsburg ownership in 1540 as a gift from the Polish King Sigismund (1506-1548), who was visiting the Viennese court of the future Emperor, Ferdinand I. Ferdinand was so enthralled with this artefact that he ordered the poet Wilhelm Shurf to write a poem that told the horn's story and henceforth this poem accompanied it.[309] Translated into English the poem reads as follows:

> By the will and power of God,
> I am weak in nature and constituted as follows:
> My height exceeds a deer by a little,
> My front legs are longer than my back legs;
> My neck is long, and my head is subtle and slender,

[308] As illustrated in Cod. Min. 129. For a complete bibliography and additional details pertaining to the unicorn horn, see Staundinger, *Bestiare*, 15, 48, 122-125.

[309] Wilhelm Shurf was paid 9 florins and 30 kreutzer for the task of writing the poem, Ibd., 123.

And surmounted by one single horn,
Set on high bumps, the rear legs are forked,
I have the eyes of an eagle,
A coat similar to that of a lamb,
And the best venison of all the animals.
At any time I run faster than a horse, a greyhound, a lynx, or the cheetah;
My home is between two waters
That separate from each other Asia and Europe;
In the kingdom of Poland I was wandering
When Bernhard Prettwitz captured me
And my horn he took
And gave to the noble King Sigismund.
In Europe, one may find me only rarely
And that is why the King soon offered me
During his tour in the kingdom of Germany
To the mighty King Ferdinand.[310]

The poem emphasizes the unicorn's physical appearance and its ability to run faster than any known animal. It also emphasizes where the animal lived prior to its capture and who captured it. In this way the poem establishes the authenticity of the unicorn horn that was given to Ferdinand by the Polish king; that is to say, its documented origins testify to the horn's authenticity and magic.

It was a few decades before the horn would arrive in Rudolf's *Kunstkammer*. Upon Ferdinand's death in 1564, his three sons, Maximilian II, Ferdinand II, and Karl II, who inherited their father's treasures and collections, drew up a contract in which the horn (and an equally famous agate bowl) were to be conserved by the eldest prince of the

[310] English translation mine. The poem is originally written in German and has been translated into French in Ibid. as follows:
Par la volonté et le pouvoir de Dieu / Je suis faible de nature et constitué comme suit, / Ma taille ne surpasse celle d'un chevreuil que de peu, / Les pattes avant sont plus hautes que celles de derrières, / Le cou est long, la tête subtile et menue, / Elle n'est surmontée que, d'une seule corne, / Fixée sur de hautes bosses; les pieds arrière sont fourchus, / J'ai les yeux d'un aigle, /Une laine Presque semblable a celle d'un agneau, / Et la meilleure venaison de tos les animaux, / Dans ma course, je surpasse à tout moment / Le cheval, le lévrier, le lynx et le guépard; / J'ai établi ma demeure auprès de deux eaux, / Qui séparent l'une de l'autre l'Asie et l'Europe; / Je me suis égarée dans le royaume de Pologne, / Où Bernhard Prettwitz m'a capture, / A la même heure, il m'a pris la corne, / Et l'a offerte au noble roi Sigismond. / En Europe, l'on ne me trouve que rarement, / C'est pourquoi le Roi m'a offerte aussitôt / A son tour dans le pays allemande / Au très-puissant roi Ferdinand.

Austrian Habsburg family branch. Until the end of time these objects were never to be sold, given, pledged or alienated in any way. In that same year, they were thus passed to Ferdinand's eldest son, Maximilian II. In 1576, the year of Maximilian's death, they passed to his brother Ferdinand II of Tyrol. Rudolf, Maximilian's eldest son, made several attempts to get the horn and the agate bowl into his possession but was not successful until his uncle's death in 1594. However, as early as 1577, one year after the unicorn horn and agate bowl had been transferred to Ferdinand's possession, Rudolf attempted to obtain the treasured artefacts. In spite of the contract that stated that only the eldest male member of the House of Austria may act as their guardian, Rudolf clearly felt that only he, being the Emperor by the grace of God deserved to have the artefacts in his full possession.[311] Several letters passed between Ferdinand and Rudolf to this effect.[312] Upon conferring with his younger brother Karl II, Ferdinand finally agreed to lend the two pieces to Rudolf, an offer that did not please the Emperor. Rudolf wanted to possess the treasure entirely. It was not until 1595, shortly after the death of Ferdinand II, that the horn and agate bowl finally went to Rudolf.[313]

The lure of this particular unicorn horn that passed through the ownership of generations of Habsburgs was in part due to its status as inalienable, and the fact that

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[311] In 1602 Khevenhüler writes to the Emperor indicating that everything foreign that he sees he tries to obtain for him; in other words, at least for Khevenhüler, the Emperor is the only one deserving enough to have these things, as he writes on 5 March 1600, "Denn mich dunkt, das alles das, so ich sehe und mir fremd fürrkumbt, allain für eure kaiserliche Majestät begern sol," Rudolf, "Exotica bei Karl V.," 176, as cited in Voltelini, "Urkunden und Regesten aus dem k.u. k. Haus-, Hof- und Staats-Archiv in Wien," *Jahrbuch der Kunsthistorischen Sammlungen des Allerhöchstein Kaiserhauses* 15 (1894), 168.

[312] As Evans states, Rudolf saw himself as the only custodian of the treasure of his House, and considered himself entitled by right to claim the objects after the death of Ferdinand, see Evans, *Rudolf and His World*, 179.

[313] Herbert Haupt, "L'empereur Rodolphe II de Habsbourg (1552-1612): Une vie au tournant de l'histoire," in *Le Bestiaire*, 15.

Rudolf had been denied it for many years. This would have likely caused Rudolf to covet the horn even more. However, unicorn horns were also perceived as extremely precious and valuable. As Odell Shepard explains, in powdered form, or in small pieces, the estimated value of the unicorn horn was just over ten times its weight in gold. A whole horn of unicorn could cost twice this amount.[314] For example, the so-called Horn of Windsor that belonged to Queen Elizabeth I was valued at one hundred thousand pounds.[315] The main reason why the unicorn horn was valued so highly was because of its rarity, its association with magical properties and also its Christian connotation.

As early as 500 BCE, the Greek physician Ctesias of Cnidus describes the unicorn and its magical effects as follows:

> There are in India certain wild asses which are as large as horses, and larger. Their bodies are white, their heads dark red, and their eyes dark blue. They have a horn on the forehead which is about a foot and a half in length. The dust filed from this horn is administered in a potion as a protection against deadly drugs. The base of this horn, for some two hands'- breadth above the brow, is pure white; the upper part is sharp and of a vivid crimson; and the remainder, or middle portion, is black. Those who drink out of these horns, made into drinking vessels, are not subject, they say, to convulsions or to the holy disease [epilepsy]. Indeed, they are immune even to poisons if, either before or after swallowing such, they drink wine, water, or anything else from these beakers.[316]

While Ctesias established the physical appearance of the unicorn for the western tradition, we can see that very early in its history the myth of the unicorn, particularly its horn, was associated with magical healing effects.

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[314] Odell Shepard, *The Lore of the Unicorn* (Boston: Houghton Mifflin, 1930), 87.

[315] This amount was reported by the German traveller by the name of Hentzner in 1598. The horn was discovered in July of 1577 in the Frobisher Strait and was reserved for the Queen of England, Shepard, *Lore*, 86.

[316] Ibid., 7-8.

The unicorn's association with the Virgin developed from the story as told in the anonymously written *Physiologus* (second century CE). As Odell Shepard writes, in the *Physiologus* the unicorn is described as

> "a small animal, like a kid, but surprisingly fierce for his size, with one very sharp horn on his head, and no hunter is able to catch him by force. Yet there is a trick by which he is taken. Men lead a virgin to the place where he most resorts and leave her there alone. As soon as he sees this virgin he runs and lays his head in her lap. She fondles him and he falls asleep. The hunters then approach and capture him and lead him to the palace of the king."[317]

It seems that the author of the poem, which accompanied the Habsburg unicorn horn, adhered to the small stature of the unicorn as established by the *Physiologus.*

In medieval Europe, the unicorn also became associated with the invincibility and humility of Christ.[318] Its Christian relevance, influenced and developed by St. Eustace of Antioch and Bishop Ambrose of Milan, came to embody the spiritual nature of Christ. Its horn was associated with divine power and the unity between Christ and God.[319] Many medieval bestiaries that drew upon the tradition established by Pope Gregory the Great in the sixth century suggest that the unicorn represents Christ.[320] As Michael Ryan describes, the idea of Christ as the spiritual unicorn "was read in every physiological

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[317] Ibid., 26 and 48.

[318] For a history and legend of the unicorn and an overview of literature, see Shepard, *Lore*. As Shepard notes, the unicorn is mentioned in the Bible in the following passages: Numbers 23: 22; Deuteronomy 33: 17; Job 39: 9-12; Psalm 22: 21; Psalm 29:6; Psalm 92:10; Isaiah 34: 7. Also see Antoine Schnapper, *Le géant, la licorne et la tulipe. Les cabinets de curiosités en France au XVIIe siècle* (Paris: Flammarion, 1988), 87-94.

[319] Aleks Pluskowski, "Narwhals or Unicorns? Exotic Animals as Material Culture in Medieval Europe," *European Journal of Archaeology* 7 (2004): 305.

[320] Florence McCulloch, *Medieval Latin and French Bestiaries* (Chapell Hill: University of North Carolina, 1962), 179-80, as cited in Michael A. Ryan, "The Horn and the Relic: Mapping the Contours of Authority and Religiosity in the Late Medieval Crown of Aragon," *Critical and Historical Studies on the Preternatural* 1 (2012), 54.

aspect of the unicorn: its twisting horn symbolized the intertwining of God the son with God the father, and its fierceness in combat—in which it fought frequently against lions or elephants" [321] It thus signified Christ's power to triumph over evil.

Beyond its Christian association, the horn of the unicorn—often referred to as the *alicorn*—has a long history as being the most effective antidote against poison and as the ultimate cure for many diseases, particularly the plague.[322] Cnidias was the first to ascribe it with medicinal properties, an association that was passed along and developed by various authors well into the Renaissance. Conrad Gessner's text, *Historiae Animalium* (1551), one of the most widely read of all Renaissance natural histories that covered all known animals (real and mythical), including animals from the New World, provides an informative contemporary account of the powers of the unicorn horn.[323] Gesner states that it was believed to be effective against epilepsy, fevers, various infections, and worms. Similar to the Ctesias, Gesner also describes how physicians from antiquity turned unicorn horns into drinking vessels, which cured those afflicted with disease.[324]

Horns of the rhinoceros were also highly prized and sometimes associated or confused with horns of the mythical unicorn. Based on an inventory taken of the Prague

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[321] Ibid.

[322] See Shepard, *Lore,* 101-154.

[323] For a discussion of Gesner and his writings as they relate to the unicorn and its horn, see Stephen Bamforth, "Gesner, Marvels and Unicorns," *Nottingham French Studies* 49 (3), 2010: 110-145.

[324] Other horns are mentioned in Fröschel's inventory, particularly ones that had been carved into the shape of intricate vessels, see Bauer and Haput, "Kunstkammerinventar," 4-6. Vessels carved from animal horns that display artistic skill and ingenuity on the part of the artist who had manipulated nature's materials feature prominently in royal collections. For example see, Adriana Turpin, "The New World Collections of Duke Cosimo I de'Medici and Their Role in the Creation of a Kunst- and Wunderkammer in the Palazzo Vecchio," in *Curiosity and Wonder from the Renaissance to the Enlightenment*, ed. R. J. W. Evans and Alex Marr (Burlington: Aldershot, 2006), 62–85, especially 83-4.

Kunstkammer in 1619, we learn that the horn of the rhinoceros was valued at three times the price of gold.[325] Rudolf owned at least twenty-one rhinoceros horns, which in 1619 were valued at 60 000 Gulden.[326] To put that into perspective, around the year 1600 Johannes Kepler, the Imperial Mathematician to Rudolf II, would earn that amount in 120 years (his yearly salary was 500 Gulden).[327]

The medicinal powers of the rhinoceros horn were in part borrowed from the mythical unicorn. As Marnie Stark points out, when Europeans began to encounter the rhinoceros and its horn, it was taken to be the horn of the unicorn.[328] This was later compounded by contact with the East Indies and China, where for centuries it was believed that the rhinoceros' whole body possessed magical powers, which were thought to be especially potent in the animal's horn—the animal's chief means of defense.[329] In Europe, the unicorn and rhinoceros horns were even considered to be interchangeable, as suggested by a letter dated June 15, 1591, in which the Grand Duke Ferdinand I de' Medici asked for two ampules of anti-poison and anti-worm oil along with some

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[325] Helmut Trnek, "Marginalien zur Habsburgischen Erwerbungspolitik: Ein Nachttag," *Jahrbuch des Kunsthistorischen Sammlungen Wien* 305-310 (2001): 309. It has been suggested that when Europeans began encountering the horn of the rhinoceros, it was often mistakenly perceived as a horn of the mythical unicorn, Marnie P. Stark, "Mounted Bezoar Stones, Seychelles Nuts, and Rhinoceros Horns: Decorative Objects as Antidotes in Early Modern Europe," *Studies in the Decorative Arts* 11 (2003): 85.

[326] According to Trnek, Rudolf's collection included twelve whole horns of the rhinoceros, fourteen horns of the Indian rhinoceros, and some others that were cut into smaller pieces, "Exotica in the Kunstkammers," 45. See also Morávek, *Nově objevený inventář*, vi, 13.

[327] Rhonda Martens, *Kepler's Philosophy and the New Astronomy* (Princeton, N.J.: Princeton University Press, 2000), 16.

[328] Stark, "Mounted Bezoar Stones," 85.

[329] Shepard, *Lore*, 181.

rhinoceros horn specifically because he did not have any unicorn horns in his possession.[330]

The other very frequent artefact sent from Spain to Rudolf, as the *cédulas* show, were bezoar stones. They feature most prominently in the shipments that were sent to central Europe between 1583 and 1609. During this period, around twenty shipments sent to Rudolf II included bezoar stones, at times with as many as thirty bezoars in one shipment.[331] More than half of them were gifts from the Empress Maria of Austria, sometimes from the Archduke Albrecht or from Phillip II. Some of them were decorated with gold but most were in their natural state.

Bezoars were also very highly prized and classified among minerals as the most precious of gems, including diamonds, pearls and emeralds.[332] Bezoars were sought for their healing powers and were valued at thirty-four times the price of silver.[333] According to contemporary authors, the bezoar stone—similar to the horn of the unicorn and rhinoceros—was considered to be a very powerful and noble remedy because it served as an antidote to a wide variety of poisons derived from plants and herbs, insects and serpents. For example, Moses Maimonides in his *Treatise on Poisons and Their Antidotes* (1198), judged the bezoar as equal to crushed emeralds for its effectiveness against poisons.[334] To make use of the natural magic of the bezoar stone, small bezoars were

[330] Stark, "Mounted Bezoar Stones," 86.

[331] Bezoar stones feature very frequently in the *cédulas*, as published in Peréz de Tudela and Gschwend, "Luxury Goods," 33-91.

[332] Distelberger, "Quanta Rariora Tanta Meliora," 22

[333] Trnek, "Marginalien," 309.

[334] Stephenson, "Marvelous Antidote," 12.

ground into powder and often ingested, and the larger exemplars were transformed into decorated vessels and used as drinking vessels that neutralized poisons.[335]

A letter written on 18 September 1595 by Hans Khevenhüller and sent to Rudolf II suggests that bezoars could cure melancholy and heart conditions. He advises that the Emperor should wear it around the neck, close to the heart.[336] In 1587, the Duchess Marie Eleanor wrote to Rudolf II requesting his assistance in acquiring Turkish bezoar stones because she was deeply concerned about her husband, Duke Albrecht Friedrich of Prussia, because of his ongoing bouts of melancholy.[337] Additionally, Anselmus Boetius de Boot, Rudolf II's personal physician, stated in his *Gemmarum et Lapidum Historia*, that the bezoar is a cure against infections, heart palpitations, melancholia, quartane, epilepsy, worms, and many other diseases.[338] In 1597, Miguel Martínez de Leyua advocated use of the bezoar stone for combating the plague, noting that it was "first and foremost for curing and protecting."[339] The popularity and efficacy of the bezoar is also attested to by the fact that during outbreaks of the plague in Lisbon, bezoar stones were rented to those afflicted for ten shillings per day.[340]

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[335] Distelberger, "Quanta Rariora Tanta Meliora," 22.

[336] Voltelini, "Urkunden und Regesten," (1894), 140, as cited in Pérez de Tudela and Gschwend, "Luxury Goods," 9n53.

[337] Stephenson, "Marvelous Antidote," 4.

[338] Don Cameron Allen, "Donne and the Bezoar," *Modern Language Notes* 56 (1941): 610.

[339] Miguel Martínez de Leyua, *Remedios, preservativos, y cvrativos, para en tiempo de la peste: Y otras curiosas experiencias. Diuidido en dos cuerpos* (Madrid: En la Imprenta Real por Iuan Flamenco, 1597), 128, as cited in Stephenson, "Marvelous Antidote," 7n9.

[340] Shepard, *Lore*, 100.

A common practice was to encase the bezoar in gold or silver ornamentation, such as the bezoar painted in folio 14 of Rudolf's *Tierbuch*; suspended on a chain the bezoar could thus be dipped into wine to ward off any possible poison.[341] Many of the bezoars that Philip II received from the Viceroy of Toledo and others were embellished with detailed gold or silver ornamentation, and some were even encased in delicate gold boxes.[342] In what remains of Rudolf's *Kunstkammer* at the Kunsthistorisches Museum in there are two particularly extravagant bezoar stones. The first was decorated in Spain during the third quarter of the sixteenth century and is most likely one of the bezoars sent to Prague during the time of Khevenhüller's residence at the Spanish court (Fig. 29). The other example involves a bezoar stone that was likely sent around 1600 and decorated in enameled gold upon its arrival in Prague by the goldsmith Jan Vermeyen (Fig. 30).

Above I have related the appeal and perceived value of unicorn and rhinoceros horns as well as bezoar stones to their status as rarities and also as artefacts that were believed to possess magical properties. If used correctly, they protected people from illness and poison. However, in the case of specific horns and bezoars that were given to Rudolf by his Habsburg relatives, it was also the artefact's biography and status as gift that magnified and transformed its perceived value. Both the poem dedicated to the unicorn horn and the paintings of these artefacts in Rudolf's *Tierbuch* suggest that these artefacts were highly esteemed. For Emperor Rudolf II, the unicorn horn was a desirable object to have in his possession due to its symbolic power, its accrued history, and its magical properties. It not only symbolized the traditional association with Christian

[341] Ibid.

[342] Stephenson, "Marvelous Antidote," 4.

salvation, and by extension Rudolf's own sovereignty and power; Rudolf's fascination with this object, his desire to possess it entirely, also had much to do with the object's illustrious provenance and its inalienable status. Similarly, the gift of the rhinoceros horn from Maria of Austria was valued as a result of its accrued status of past ownership and its magical properties. What animated these products of animals was their biography, their rarity, and their purported magical properties, which, as I argue below, is attested to in the manner of their representation in Rudolf's *Tierbuch*. Seen within the context of the *Tierbuch*, and in relation to Rudolf's *Kunstkammer*, which sought knowledge about the secrets of nature, the painted pictures of exotica betray their subjects' hidden, magical or occult properties—properties that were located within their material.

Representation: between still life and natural history

The depictions of animal products in the *Tierbuch* portray the artefacts as they would have been seen within Rudolf's collection. The manner in which they are presented oscillates between still life painting and that of natural history presentation. The folios depict the object arranged on a narrow green surface, with a light source originating on the left side of the image. All the items are arranged so that the viewer can appreciate as much of the artefact's surface area as possible. The backgrounds also serve to emphasize surface qualities. In each picture, the entire page is covered in paint; however, it is clear that more care was taken in the painting of the two unicorn horns and the one of the three bezoars and pronghorn horn. The painting of the rhinoceros parts contains a hastily painted background in which brush strokes are clearly visible, but this also works to bring out the finely painted detail and material of the *naturalia* arranged on

the green table. Overall, the paintings seem to function somewhere between still-life representation (works of art that can stand on their own), a record of specific objects within a collection, and as a specimen of nature, as discussed below.

Considering the painting of three specimens from the rhinoceros, including a cup with a lid—presumably carved from a rhinoceros horn—it may be noted that the artefacts are presented for close viewing and inspection (Fig. 28).[343] The raw pieces of the rhinoceros, that is, things taken from the dead animal and generally left untreated—the horn, the tooth, and the piece of skin—are pushed towards the front of the picture plain. The covered goblet is placed slightly off-center and pushed towards the back of the green surface, partially framed by the dark shape of the horn to its right. Our line of sight is asked to move from artefact to artefact, at the same being directed towards their surface qualities. In spite of the great care that is given to the surface, the same level of attention is not given to the realistic depiction of perspective, which seems somewhat skewed. For example, we see more of the top of the molar than we should. Furthermore, the covered goblet is depicted in such a way as to appear crooked or elongated. This inaccurate depiction of the shape of the goblet and the incorrect use of perspective is at odds with the realistic rendering of surface texture and quality, especially as seen in the depiction of the skin of the rhino, which draws our attention to its rough, uneven, and scaly nature. However, it is these very perspectival inaccuracies that make the painting particularly alluring demanding that we inspect what is being represented more carefully.

[343] It has been proposed that this picture may be a copy of an image that was sent to Rudolf II by Khevenhüller in 1579. In a letter dated April 2, 1579, Khevenhüller advises the Emperor that he is going to send him two paintings that depict different objects from a rhinoceros, namely a horn, a cup, a tooth, and a portion of its skin so that the Emperor might choose which ones he would like to purchase. It is possible that folio 10 (Cod. Min. 129) may be a copy of one of these pictures. See Peréz de Tudela and Gschwend, "Luxury Goods," 50n167. As the authors note the pass for these objects was obtained on 22 September 1579, 50. See also Staudinger, *Bestiaire*, 114-15.

The painting that presents three bezoar stones and a horn of an American pronghorn on the same green surface as above (Fol. 17), we may note two large bezoar stones of the same size, one dark brown, the other beige, and the horn, all aligned at the foreground of the picture. Another oval-shaped bezoar is located towards the back of the image towards the right edge. This bezoar seems to have been polished and encased in two perpendicular bands of gold with filigree edges, which culminate in a small round ring that would have served the purpose of suspending the stone. The two bezoars in their natural state and the horn are painted in such a way as to showcase their uneven surface of nodules and bumps and provide contrast to the highly polished and decorated bezoar in the back. Again, similar to the previously discussed folio, all four objects are presented in a manner that highlights their surface qualities: the horn is turned so that we may see its tip curling to the right, and its lower prominent tip veers to the left. All three bezoar stones are positioned so that their longest side is also being depicted. The background that moves from dark grey to black on the left side gradually becomes lighter towards the right and is broken up with random spots of lighter grey, which is due to damage that the page sustained over time. Similar to still-life imagery that was then being developed, overall it seems that it is the earthly material quality of these objects that is emphasized.

The last painting I address is the picture of the two unicorn horns, one of which is thought to have been the famous inalienable unicorn. In the image, painted in thick layers of oil paint, we see two unicorn horns, one long and thin that stretches beyond the limits of the picture plane, the other a cut base portion of a horn of the same mythical animal. They are depicted lying horizontally on a narrow green table. The light source in the image illuminates the surface qualities of the two horns, emphasizing their spiral nature,

their grooves and vein-like crevices. The pitch-black background contrasts markedly with the bright color of the horn giving the impression that it is radiating out of the image. In this painting, much care has been taken to portray the material of the horns as convincingly as possible. The space the two horns occupy does not extend into the space of the viewer, reinforcing the fact that the objects are just out of our reach and may only be looked at despite their seeming invitation to be touched—a quality that is achieved through naturalistic rendering. The use of light and the focus upon surface texture, which emphasizes the physical materiality of the horns, suggests something intangible—qualities that may only be apprehended through vision. I argue that through the particular representation as discussed above, the painting makes tangible the magic that is inherent to the properties of the horns.

What do the pictures in Rudolf's *Tierbuch* say about the objects they present? They suggest an ambiguity that resists any clear reading or interpretation. They are not simply records of objects within Rudolf's *Kunstkammer*, or stand-ins for unavailable ones, which is their traditional explanation. Their otherworldly presentation achieved through attention to surface detail, modeling, light source, and composition suggests that these pictures are more than just depictions of specimens. It is this ambiguity that speaks to, or activates, the magical qualities of these represented artefacts and it is also what makes an unproblematic classification of these pictures impossible.

In all three folios the viewer is asked to look and inspect the materiality of the objects depicted therein. Surface qualities of the objects are emphasized: the shiny surface of the decorated bezoar, the smooth striated material of the rhinoceros horns, the rough surface of the natural bezoars and of the horn of the pronghorn, and the spiral

nature of the linear grooves and vein-like crevices of the unicorn horns all vie for attention. The shadows the objects cast are not only indicative of a light source but also suggestive of volume; similarly, the objects' modeling and shading showcase them as they would have appeared to the artist who was painting them from life.

As paintings that represent inanimate objects arranged on a flat surface for viewing, these pictures seem to also point towards the genre of still life, which, as has recently been demonstrated by Kaufmann, had begun to develop at Rudolf's court in the late 1580s.[344] However, they resist this classification as well, for they are not images that were meant to stand on their own, not even in relation to each other. In view of the volume of paintings of which they are a part, and the way in which they present and display and advertise the objects for study, these images also intersect with studies of nature and thus natural history.

However, they trouble this classification as well. They differ markedly, for example, from the gouache paintings on paper in Cod. min. 42 that depicts studies of plants and animals. In these natural history illustrations, only the specimen itself receives painterly attention, not the whole page. When examined closely, it may be noted that the paintings of animal products in the *Tierbuch* are painted in thick layers of oil paint, especially folio 14 of the unicorn horns where the black pigment has begun to crack and peel off.

Admittedly, less care has been taken with the background of the rhinoceros horns. In this picture the background seems to have been painted quickly as hurried brushstrokes are clearly visible. But it, too, contrasts with the almost obsessively painted surface of the

[344] Kaufmann, "Arcimboldo and the Origins of Still Life," in *Arcimboldo: Visual Jokes,* 167-189.

rhinoceros horns, especially the decorative detail of filigree jewels, gold, and pearls. Our attention is thus directed onto the surface qualities of the materials that compose and decorate the objects.

An exotic relic

The paintings of animal products in Rudolf's *Tierbuch* display a Catholic visual language that should not be overlooked. The natural artefacts bring to mind relics—bones of saints made into relics—especially the decorated horn of the rhinoceros, and the bezoar incased in gold. In the case of the decorated rhinoceros horn, the gold filigree, rubies, and pearls are reminiscent of a reliquary encasing, elevating the object within to another level of importance.

As Michael A. Ryan points out, relics and certain products of animals were both believed to possess significant preternatural properties; in this way they connected the natural and supernatural worlds.[345] Relics are believed to function in the guise of miracles of healing or inner enlightenment in which the holy is immanent within them; they negotiate between the material world and the divine. A relic is not a mere symbol or indicator of divine presence; it is an actual physical embodiment of it and encapsulates the essence of the departed person *pars pro toto*, which is critical to the value and power of the relic. Similarly, in the case of the natural artefacts that came from the bodies of animals, the natural magic is located within the substance of the material. By coming into contact with its material—through touch or ingestion—it may be called upon to heal and protect. For example, Philip II is known to have relied upon the efficacy of holy objects

[345] Ryan, "The Horn and the Relic," 58. For a discussion of the preternatural refer to Daston and Park, *Wonders*, particularly chapters 3 and 4.

for his bouts of gout and for healing his heir's (Don Carlos) serious head injury.[346] The idea of *pars pro toto* also applies in the case of the animal parts; that is, the animal part signals the animal as a whole. For example, the fact that the bezoar stone came from the "bezoar beast," and that the unicorn horn came from a unicorn was key to its magic. This is why the paintings of the animal parts are framed by depictions of the animals from which they came, as discussed earlier in the Chapter in relation to the *Tierbuch* as a whole. In regards to the paintings of animal parts that possess natural magic, it may be said that the divine serves to animate the natural while the natural and miraculous testify to the miracle of the divine.

The fact that the preternatural rarities here discussed were often sent to central Europe in exchange for holy relics further animates the pictures' divine presence. Rudolf did not hesitate to trade the relics that had been accumulated by his fourteenth-century predecessor, Emperor Charles IV, for natural rarities.[347] In turn, Philip II was eager to receive these gifts—he was a famous collector of relics that he accumulated in his massive collection in the palace-monastery of the Escorial in Madrid.[348] Rudolf II was not the first and only Austrian Habsburg to send relics to Spain. While still residing in Austria, his mother, Empress Maria, also sent many relics to her brother Philip.[349]

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[346] Guy Lazure, "Possessing the Sacred: Monarchy and Identity in Philip II's Relic Collection at the Escorial," *Renaissance Quarterly* 60, 1 (2007): 59.

[347] Charles is well known for his relic-hunting activities—activities with which he reinforced the local cult of relics in Prague in order to bolster the economic and political status of the city.

[348] Philip's devotion to the cult of relics has been associated with his own Catholic devotion; however, it should also be understood in relation to his goals of state building and forging a national identity, see Lazure, "Possessing the Sacred," 58–93.

[349] See Pérez de Tudela and Gschwend, "Luxury Goods," 13-14 and Gschwend, "Catherine of Austria and a Habsburg Relic for the Monastery of Valbemfeito, Obidos," in *Journal of the History of Collections 2, 2* (1990): 187-198;

Rudolf's fascination with natural rarities may thus be said to parallel the Spanish interest in relics.

Through the artefacts' origin in foreign lands, through their study as specimens of nature and its hidden processes, through trafficking, collecting, and gifting, these objects were raised to another level of importance. They became discursively meaningful through the various entangled practices and associations, and it is also by these means that magical powers accrued to them. I suggest that through the above mentioned processes the divine qualities inherent to relics migrated into the particular artefacts that were brought to Europe from the New World. Their presentation in Rudolf's *Tierbuch* is part of their discursiveness, but it is also this representation that points to the otherworldly properties of the represented artefacts.

Conclusion

Naturalia, such as horns of the rhinoceros, the mythical unicorn, and bezoar stones were coveted artefacts in the sixteenth and seventeenth centuries. As discussed in this Chapter, aristocratic collectors in central Europe were eager to pay a high price for them and often used agents to procure artefacts from faraway lands. Furthermore, as the *cédulas* show, Rudolf II obtained a significant quantity of horns and bezoar stones as gifts that were sent to him from his relatives in Spain in exchange for holy relics. Many of the natural artefacts were often artistically embellished, some were carved into vessels, added to collections, and held in very high esteem as the most precious of *Kunstkammer* things. Similar to relics that facilitated contact with a saint and healed the believer, these natural artefacts were believed to possess natural magic. Their occult or hidden properties of

were inherent to their material and could only be apprehended through touch or ingestion. However, as I have argued above, their particular representation in Rudolf's *Tierbuch* betrays the struggle to reveal the natural magic, something that is not visible to the human eye.

How can something that is invisible, such as the magic of a relic or a natural artefact, be made manifest? The paintings in Rudolf's *Tierbuch* present animal parts, both as they would appear in their natural state (after removal from their host) and after they had been treated and transformed by human intervention—whether through cutting (in the case of the unicorn horn), polishing (in the case of the black bezoar), or through the addition of decorative and costly materials (in the case of the filigree gold of the rhino horn and the gold setting of the bezoar stone). Artificially embellished, as if holy relics encased in reliquaries, the painted rhinoceros horn and decorated bezoar are raised to higher lever of importance. Through an emphasis on form, texture, and the use of light, the mode of painting points to something hidden and mysterious in the substance of these things—opened up for instance by cutting the horn—while the artificial embellishment signifies their occult, or hidden, properties. The meticulously painted surface qualities of the artefacts, arranged on a table like still-life, insists we admire them, and in the case of the decorated rhinoceros horn, to compare the raw matter of the animal and its decorative frame. Displayed in proximity to each other, but standing apart, the composition encourages seeing one in the other, that is, to imagine unleashing the magic suspended within the undecorated material remnant through its framed double, whose decoration attests to, even consecrates, the imminence of the remains it withholds. At the same time, the context for which these paintings were made—the compendium of animal paintings—

aligns the animal parts to the study of natural history. Finally, as representations of artefacts that were collected by Rudolf and which are mentioned in his *Kunstkammer* inventory, they function as a visual record of particularly admired natural artefacts Rudolf owned. The artifacts thereby had multiple lives simultaneously, as artefacts of natural and magic knowledge, and as rarities that were prized and displayed. That these parts endured after the death of the animal, as art objects and as painted specimens, attests to their distinctive character as gifts.

The painted pictures of animal parts and animal products speak not only to the existence of their referents within Rudolf's collection, but also to their referents' status' as rarities that came from faraway lands, imbued with magical curative and antidotal powers. For Rudolf II, someone who patronized the pursuit of natural knowledge, such objects not only made appealing additions for his *Kunstkammer*. Objects of wonder represented wealth and power of the prince through display, but for Rudolf, who only allowed a few selected individuals to view his collections, his *Kunstkammer* also functioned as a repository of knowledge that could be used in order to learn about the secrets of nature, a pursuit that Rudolf actively nurtured at his court. The quest to understand the workings of nature and surmount it was also a means to human betterment. Perhaps then, the natural magic of the pretenatural artefacts that are represented in his *Tierbuch* could ultimately help Rudolf restore not only his own health but also the health of the crumbling empire, as discussed in the introduction of this dissertation.

Through the giving of gifts of *naturalia* long distance relationships were rendered closer through gifts of meaningful artefacts that were themselves from faraway places. As

I discussed in the introduction of this dissertation, in recent literature, gifts have often been discussed in terms of their performative efficacy in the production and reproduction of social relations and in relation to their ability to represent power and authority through display. Without a doubt gifts were integral to the construction of social and political bonds, sacred dynamics, and in mediating familial and dynastic relations. What this Chapter underscores, however, is that for Rudolf II what was at stake was not simply the social bond played out in the performance of gift giving. It was rather the thing given to him, the materiality of the object itself that he coveted. For Rudolf II, his relatives in Spain were purveyors of natural rarities that were the true object of the game of diplomacy—thus it was precisely the magical properties inherent to the substance of the thing he received that were at stake when it came to maintaining ties with his Habsburg relatives in Spain. Such gifts were prized beyond all measure.

Chapter Five

Instrumental Images and Gifts of Knowledge: Stars, Books, and Instruments

Introduction

Depicted outdoors against a pink and blue sky, a hand colored print in Tycho Brahe's *Astronomiae instauratae mechanica* [*Instruments of the renewed astronomy*] displays a colored rectangular wood block print of an equatorial armillary (Fig. 31). The instrument is composed of two distinct parts. The head—the upper perfectly circular portion that includes the armillae or rings painted in gold leaf, emphasizing the instrument's metallic surface of brass. The base, the more decorative aspect of the instrument, supports the armillae in space. A thick black line outlines the edges of the picture giving the impression that the space the instrument occupies is a view or window into another world. This window is surmounted by a Latin inscription in majuscule letters—ARMILLAE AEQUATORIAE—indicating the instrument's name. Above the inscription, just below the picture, is a decorative strip of floral and grotesque decoration. Finally, a nonfigurative decorative frame, thicker at the bottom and painted dull red, contains the image and its frames in space.

While the framing devices organize our viewing experience of the image, a peculiar interplay between the head and body of the instrument disrupts the structured presentation of the armillary. The head of the instrument bears the marks of minutes that are clearly inscribed on arcs. Delineated through a balance and a symmetrical rendering, they suggest measurement, order, and clarity. While an attempt at symmetry is present in the base of the instrument, particularly in the two facing brackets that support the main

wall of the body and suggest depth and perspective, their decorative elements—the curving colorful scrolls and figures standing in niches—distract from the symmetrical properties of the head. Something is also awry in the use of linear perspective in the base: the two decorative and supporting brackets appear to be twisting to the right, with the right-hand bracket partly obscuring the decorative edge of the base that contains the two figures, effectively ruining the symmetry that would otherwise be visible. Overall the contrast between the decorative body of the instrument and the symmetrical, balanced, and ordered head contributes to the general impression of disjointedness of the printed instrument and beckons the viewer to inspect the picture of the armillary sphere more closely.

The woodblock print of the equatorial armillary pictures an instrument contained in the *Astronomiae instauratae mechanica* (1598) that the author, Tycho Brahe, had invented, as stated in the armillary's accompanied written description on the facing page.[350] It is one among twenty-one hand painted prints of instruments of which eighteen were produced as woodblocks prints and four as copperplate engravings.[351] Dedicated to the Emperor Rudolf II, the *Mechanica* is a catalogue of mathematical instruments that

[350] Henceforth, referred to as the *Mechanica.* The *Equatorial Armillary* was built by Brahe around the year 1580, John R. n, *On Tycho's Island: Tycho Brahe, Science, and Culture in the Sixteenth Century* (Cambridge: Cambridge University Press, 2000), 70. All the pictures of instruments addressed in this chapter are taken from the copy of the *Mechanica* held at the Library in Copenhagen, Denmark (The National Library of Denmark and the University Library of the University of Copenhagen). This copy was dedicated by Tycho Brahe to Petr Vok of Rožmberk (1539-1611) (Petr Vok von Rosenberg), a learned Czech Protestant nobleman of the House of Rosenberg and an enthusiastic collector of books, who owned a library of ten thousand volumes at his castle of Český Krumlov. According to Thoren the major portion of his library ended up as Swedish booty from the Thirty Year's War, *The Lord of Uraniborg: A Biography Tycho Brahe* (Cambridge: Cambridge University Press, 1990), 467. Rožmberk's copy is one of the finest extant and well-preserved examples. It is available for high resolution viewing and download through the Royal Library at http://www.kb.dk/en/nb/tema/webudstillinger/brahe_mechanica/brahe_fsi.html?page=4

[351] In the caption of images of Brahe's instruments, Christianson provides approximate dates of construction, suggesting that the majority of Brahe's instruments were constructed during the 1570s and early 80s, Christianson, *On Tycho's Island*.

were built based on Brahe's designs while he resided and practiced astronomy in Denmark. Some instruments were his own inventions, while others were improved versions of those already in use by astronomers.

The *Mechanica* was published in two editions: the first edition, financed by Brahe was printed privately in 1598 by the Hamburg printer Philip von Ohrs using Brahe's own private printing press at the castle of Wandsbeck.[352] This first hand-colored folio edition was meant for private distribution and included between 60-100 copies that were calculatedly distributed among well connected friends, scholars, and aristocrats who were interested in the science of astronomy. Four years later in 1602, one year after Brahe's death, another edition was published in Nuremberg by Levinus Hulsius. The second edition made use of the same woodblocks but was not hand painted. It was also produced in greater numbers and intended for the book market. This Chapter is concerned with the initial 1598 edition of the *Mechanica* that was distributed among Brahe's network of contacts prior to being presented as a gift to the Emperor Rudolf II. By first disseminating the *Mechanica* among well connected friends and scholars who were part of the Republic of Letters—the virtual community, or a public of scholars who maintained correspondence through letters and exchange of things and ideas—Brahe gained acclaim and support. As we shall see, Brahe mobilized the process of his book's dissemination amongst this public to personal ends.

The *Astronomiae instauratae mechanica* is one of three books that were given by Brahe to the Emperor Rudolf II in 1598 on the occasion of their first meeting in Prague. Brahe also gave Rudolf two manuscripts of his work: an ephemeris of daily positions of

[352] Tycho Brahe, *Instruments of the Renewed Astronomy*, ed. Alena Hadravová, Petr Hadrava, and Jole R. Shackelford (Prague: Koniash Latin Press, 1996), xii.

the sun and moon for the year 1599 and an elegant catalogue of 1004 stars, called *Astronomiae Instauratae Progymnasmata* [Introductory Exercise toward a restored Astronomy, published posthumously in Prague in 1602].[353] While none of the volumes given to Rudolf have been identified, several nearly identical presentation copies of the *Mechanica* that Brahe distributed to individuals who brokered his future position at the imperial court may be found in libraries today.[354]

Tycho Brahe (1546-1601) was a Danish mathematician and aristocrat who made significant contributions to early modern astronomy.[355] John R. Christianson has described him as a "master of the patronage system, who successfully combined many strands of social and cultural life, created a new organizational model for the pursuit of science on a grand scale, and brought large teams of scholars, scientists, and technicians into the enterprise."[356] Between the years 1576 and 1598, while under the patronage of King Frederick II of Denmark, Brahe established Europe's first modern research institution on the fiefdom of the Island of Hven that had been given to him by the Danish

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[353] Brahe's *Mechanica* and the other two manuscripts he bestowed to Rudolf II are mentioned in Fröschel's inventory as being in chest no. 97, Bauer and Haupt, "Kunstkammerinventar," 136 no. 2717: "Drey bücer, die 2 geschriben von der hand, das dritte gedruckht, *Anth: Tichonis Brahe*, sein alle drey in gulden stuckh gebunden mit seiden nestell und guldenen stefften." Several manuscript versions of the catalogue of 1004 were made. For a list of currently known locations see Giancarlo Truffa, "The First Printed Edition of Tycho's 1004 Star Catalogue," *Acta Historica Astronomiae* 16 (2002): 322.

[354] In the 20th century, thirty-five of these gifted books have been identified by B. Hasselberg, "Einige Bemerkungen über Tycho Brahes Astronomiae Instaurate Mechanica. Wandesburgi 1598," *Vierteljahrschrift Der Astronomischen Gessellschaft* XXXIX (1904): 180–87. Wilhem Norlind added five more, *Tycho Brahe. En Levnadsteckning Med Nya Bidrag Belysande Hans Liv Och Verk* (Lund: Gleerup, 1970), 286-93, as cited in Thoren, *The Lord of Uraniborg,* 386.

[355] Brahe's major works include *De nova stella* [The New Star] (Copenhagen, 1573); *De Mundi Aetherei Recentioribus Phaenomenis* [Concerning the New Phenomena in the Ethereal World) (Uraniburg, 1588); *Epistolae astronomicae* [Astronomical letters] (Uraniborg, 1596); *Astronomiae Instauratae Progymnasmata* [Introduction to the New Astornomy] (Prague, 1602).

[356] Christianson, *On Tycho's Island*, 246-247.

king for the sole purpose of pursuing the science of astronomy.[357] On the Island of Hven Brahe built two observatories, Uraniborg and nearby Stjerneborg, where mathematicians, scholars, and artisans came together to perform cutting edge work in astronomy.[358] Brahe published some of his results using his own printing press and paper produced at his own paper mill, thus maintaining tight control over the content and dissemination of his work.[359] Following Frederick's death in 1588, and after falling out of favor with Frederick's successor, King Christian IV, whose interest in extensive scientific patronage was waning, Brahe was forced to abandoned his observatories on Hven for the quest of a new patron, leaving Denmark in 1597.[360] The research facility he established on Hven fell into disrepair and was destroyed by the early seventeenth century. While none of Brahe's mathematical instruments are known to exist today, they have been preserved in the extant copies of the *Mechanica*.

Like many other early modern humanists, Brahe maintained an active correspondence with scholars and patrons of astronomy across Europe and made use of

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[357] For the citation of a letter from King Frederick II to Brahe where he offers Brahe the island of Hven, see Ibid., 22. Today the island belongs to Sweden, but during Brahe's time it was part of Denmark located between Zealand and Scania.

[358] King Frederick II of Denmark was a supporter of learning, and was drawn to innovative thinkers like Luther, Copernicus, Paracelsus, Ramus and Girodano Bruno and built a strong infrastructure of higher education in Denmark, and supported it with sustained funding that allowed large-scale scientific activity to flourish, see Ibid., 14-21.

[359] The cost of publishing a book was so high that Brahe deemed it worthy to make his own paper also had his own printing press. As In the sixteenth century the cost of paper itself was about half of the total cost of production, see Ian. W. F. MacLean, *Learning and the Market Place: Essays in the History of the Early Modern Book* (Leiden: Koninklijke Brill NV, 2009), 39. See Adrian Johns for a discussion about the need for tight control over the process of printing a book, in order to generate trust and to protect one's work from piracy, Adrian Johns, *The Nature of the Book: Print and Knowledge in the Making* (Chicago: University of Chicago Press, 1998), 6-40.

[360] For a discussion of the circumstances that forced Brahe to leave Denmark, see Christianson, *On Tycho's Island*, 171-206; Thoren, *Lord of Uraniborg*, 334-425.

their connections in his search for patronage. This network was maintained through regular correspondence and gift exchange according to the early modern custom, as addressed later in this Chapter.[361] Using his connections and disseminating the *Mechanica* as a gift among them—itself publically dedicated and later presented to Rudolf II—Brahe was able to secure patronage at the imperial court in Prague, being named Imperial Mathematician in 1599.[362] He was later given the castle Benátky nad Jizerou where he began the process of setting up a new astronomical observatory, bringing many of his instruments from Denmark.

The *Mechanica* functions as an essential component of Brahe's patronage strategy in which he presents himself and his instruments—the key tools of his science—to his network of brokers, to Rudolf II, and lastly, to posterity. The book acts as a detailed curriculum vita, complete with an introductory portrait of Brahe himself, and offers a view into his unprecedented methods and techniques. Apart from the pictures of the instruments, the *Mechanica* contains methodical descriptions of the instruments' use and function, Brahe's scientific autobiography, and letters and poems written by his friends and colleagues who praise his achievements and his dedication to astronomy. The *Mechanica* also includes an in-depth description of Brahe's observatories of Uraniborg and Stjerneborg, including a bird's eye view of the Island of Hven.

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[361] For the fashioning of scholars attempting to gain patronage at court see Mario Biagioli, *Galileo, Courtier: The Practice of Science in the Culture of Absolutism* (Chicago: University of Chicago Press, 1993).

[362] For a discussion about the various strategies relying on visual means employed by astronomers in the attempt of securing patronage, see Volker R. Remmert, "Visual Legitimisation of Astronomy in the Sixteenth and Seventeenth Centuries: Atlas, Hercules and Tycho's Nose," *Studies in History and Philosophy of Science Part A* 38, no. 2 (June 2007): 327–62.

It should be noted that several copies of the 1598 edition of the *Mechanica* survive in libraries today. Overall, the content and layout of the extant copies appears to be identical, although some copies lack the introductory portrait of Brahe that faces the initial page of the dedication.[363] Most of the copies are bound in green or blue silk that feature a gilt portrait of Brahe, his coat of arms at the center, as well as gilt bands of decoration composed of delicate foliage and flowers.[364] Generally, the variety in the quality of the book's embellishment is dependent on its initial recipient, as determined by Brahe. In short, more illustrious recipients received finer copies. For example the copy of the *Mechanica* held at the Dresden library lacks the hand-written dedication and it may be said that the coloring of its prints is less fine.[365] On the other hand the copies held at the Copenhagen Royal Library, and at the British Library contain a personal dedication. The former is dedicated to Petr Vok of Rožmberk, an important Czech magnate, and the latter is dedicated to Tadeáš Hájek z Hájku (1525-1600) (Thaddeus Hagecius av Hayck), Rudolf II's personal physician and Brahe's most important correspondent and friend at

[363] Hasselberg, "Bemerkungen über Mechanica," xii.

[364] According to Christianson, the early copies that were printed were bound in leather, the finer copies were bound in vellum, and the most sumptuous ones were bound in pale silk with metal clasps, Christianson, *On Tycho's Island*, 224.

[365] Although its ownership is indidcated by the *exlibris* although this copy includes the *exlibris* of Johan Adam von Fabricius, the son of one of Brahe's *familia* while he was still residing on Hven For a description of the book plate of Fabricius, see John Leicester Warren, *A Guide to the Study of Book Plates (ex-Libris)* (London: Elkin Mathews & John Lare, 1892). Johann Adam von Fabriz, or Johann Fabricius (1587-1616) was the son of David Fabricius (1564-1617), an astronomer and friend of Tycho Brahe, Christianson, *On Tycho's Island*, 264-266.

the imperial court.[366] These two copies of the *Mechanica* are particularly fine in the careful hand coloring of the prints and addition of gold leaf.

The *Mechanica* is unique in its systematic organization and display of instruments and of the observatories where the instruments were used. The printed pictures perform the main informatory function, with the accompanying written words supplying additional information about the use of the instruments. An investigation into the 1598 edition of the *Mechanica*, its presentation, organization, content, and dissemination—including its hand-colored prints of instruments—thus offers a unique view into the performance of this printed gift. Three key themes are explored in this Chapter: the *Mechanica*/the book, Tycho Brahe/the magus, and the network of individuals brought together by the movement of this book.

Above all, the 1598 hand-colored edition of the *Astronomiae instauratae mechanica* presents the instruments of Brahe's 'renewed' astronomy, as its title implies, promoting his emphasis on accurate and reliable instruments and repeated observations. Brahe consciously participated in the restoration of astronomy, a notion that relates to the general Renaissance belief that human knowledge was in need of reform—an instauration—because it had become corrupt by the passage of time. As I explain in more detail below, by the second half of the sixteenth century, the notion that the knowledge of classical authors was in need of a restoration was supplanted by the awareness that new found knowledge—such as the technology of print, advances in medicine, navigation, botany, geography, and the discovery of new lands (to name a few)—surpassed the

[366] Petr Wok is mentioned in the introduction of this dissertation, 1-2, see also page 82. The Strahov Monastery library in Prague holds another copy that has the personalized dedication page by Brahe. It is dedicated to Johannes Zbyněk of Hazmburk, AG XI 56, Tres. II 56. Brahe met Tadeáš Hájek z Hájku during Rudolf's coronation as King of the Romans in 1575, Christianson, *On Tycho's Island*, 69.

knowledge of the ancients. Thus, rather than restoring knowledge, scholars turned towards new methods and technologies, engaging in experimentation and observation.

As Adam Mosley describes, Brahe was among the first mathematicians to establish "a new observationally grounded astronomy," based on repeated, accurate, and comprehensive planetary observations obtained through the aid of multiple, improved mathematical instruments.[367] His authority in astronomy thus rested on his instruments, which became central to his endeavor of renewing the science. His mathematical instruments allowed him to obtain positions of the heavenly bodies that were the most precise of their time. As illustrated in the *Mechanica*, Brahe's emphasis on the repeatability of observations, and above all the presentation of his improved instruments set a precedent that was to influence later astronomers: by the end of the seventeenth century a detailed discussion of instruments was a necessary component to any major astronomical treatise. [368] Furthermore, Brahe's contributions to astronomy, obtained using the very instruments that are depicted in the *Mechanica*, provided crucial data for later astronomers—such as Johannes Kepler, who succeeded Brahe as Imperial Mathematician when Brahe died prematurely in Prague in 1601—and allowed them to construct our present model of the solar system.

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[367] Adam Mosley, "The Reformation of Astronomy," in *The Impact of the European Reformation: Princes, Clergy, and People*, ed. Bridget Heal and Ole Peter Grell (Aldershot: Ashage Publishing Company, 2008), 244; Lorraine Daston, "The Empire of Observation, 1600-1800," in *Histories of Scientific Observation* (Chicago: University of California Press, 2011), 81–113; Giana Pomata, "Observation Rising: Birth of an Epistemic Genre, 1500-1650," in *Histories of Scientific Observation* (Chicago: Chicago University Press, 2011), 45–80. For an account of how Brahe succeeded in improving measurement accuracy using his new instruments and methods, see Gudrun Wolfschmidt, "The Observatories and Instruments of Tycho Brahe," in *Tycho Brahe and Prague: Crossroads of European Science*, Christians (Frankfurt am Main: H. Deutsch, 2002), 203–16.

[368] Albert Van Helden, "Telescopes and Authority from Galileo to Cassini," *Osiris* 9 (1994): 10. Allan Chapman, "Tycho Brahe in China: The Jesuit Mission to Peking and the Iconography of European Instrument-Making Processes," *Annals of Science* 41 (1984): 417–43.

It is important to note that the technology of print allowed for the deployment of knowledge in the form of the published book composed of written and pictorial knowledge.[369] The increase in the sixteenth century in the production of scientific treatises on botany, zoology, medicine, anatomy, geography, navigation, astrology, and astronomy was in part a response to the new possibilities that the technology of print allowed. Recent literature has shown that the printing of texts shaped scientific practice, allowed for increased dissemination of observations and theories, contributed to establishing new modes of thought, and facilitated forms of collaboration that were not possible during the scribal age.[370] And as Adrien Johns, William Eamon, Anthony Grafton, Lucien Febvre and Henri-Jean Martin, Stillman Drake, Elizabeth Eisenstein and others have elaborated, print facilitated increased production, circulation, and access to scientific material, which contributed to the advancement of knowledge in the early modern period in unprecedented ways.[371] A full account of the effects of print on early modern science is beyond the scope of this Chapter; however, it is within this context that Brahe's *Mechanica* should be considered.

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[369] See for example, Lucien Febvre and Henri-Jean Martin, *The Coming of the Book: The Impact of Printing 1450-1800* (London: Verso, 1976); Elizabeth L. Eisenstein, *The Printing Revolution in Early Modern Europe* (Cambridge: Cambridge University Press, 2005); Susan Dackerman, ed., *Prints and the Pursuit of Knowledge in Early Modern Europe* (Boston: Harvard Art Museum, 2011).

[370] For a discussion of this topic in relation to Brahe's use of the technology of print in his pursuit of astronomy, refer to Mosley's chapter "Books and the Heavens," in *Bearing the Heavens*, 116-208.

[371] Johns, *The Nature of the Book: Print and Knowledge in the Making*; William Eamon, "Arcana Disclosed: The Advent of Printing, the Books of Secrets Tradition and the Development of Experimental Science in the Sixteenth Century," *History of Science* 22 (1984): 111–50; Anthony T. Grafton, "The Importance of Being Printed," *The Journal of Interdisciplinary History* 11, no. 2 (October 1, 1980): 265–86; Lucien Febvre and Henry-Jean Martin, *Coming of the Book*; Stillman Drake, "Early Science and the Printed Book: The Spread of Science Beyond the Universities," *Renaissance and Reformation / Renaissance et Réforme* 6, no. 3 (1978): 43–52; Eisenstein, "The Book of Nature Transformed: Printing and the Rise of Modern Science," in *The Printing Revolution in Early Modern Europe*, Second edition, Canto Classics (Cambridge: Cambridge University Press, 2012), 209–85.

In what follows, the general layout and content of the *Mechanica* is addressed in relation to the sixteenth-century quest that sought a renewal, or instauration of astronomy. This section highlights Brahe's approach to the science that centered upon the use of multiple, reliable instruments, and a collaborative effort. Brahe's prints of instruments are then examined in relation to the manner in which they engage an embodied viewing while stressing clarity. I argue that as the main tools of Brahe's astronomy, they promote Brahe's observational astronomy. The section that follows underscores the appeal of the *Mechanica* in the age of absolutism, highlighting its particular attractiveness to Emperor Rudolf II. Finally, in the last section I demonstrate how Brahe harnessed the technology of print to gain support from the Republic of Letters, of which he was a part, and how this functioned to elicit patronage at the imperial court prior to hand-delivering a copy of the *Mechanica* to Rudolf himself.

Previous scholarship has addressed Brahe's patronage strategy and his ability to expertly manipulate the patronage network and to amalgamate various resources in order to secure his enterprise.[372] This Chapter draws attention to the agency of the printed book in that process. Brahe's knowledge and instruments made explicit in the *Mechanica* allowed Brahe to promote his reputation and ultimately to endorse himself to Rudolf as the most important astronomer of his time. In this way, the *Mechanica*'s movement

[372] Christianson, *On Tycho's Island*. Important source on patronage of science in the age of absolutism are the following: Biagioli, *Galileo, Courtier*; Nicholas Jardine, "The Places of Astronomy in Early-Modern Culture," *Journal of the History of Astronomy* 29 (1998): 49–62; Richard S. Westfall, "Science and Patronage: Galileo and the Telescope.," *Isis : International Review Devoted to the History of Science and Its Civilisation* 76, no. 281 (1985): 11–30; Stephen Pumfrey and Frances Dawbarn, "Science and Patronage in England, 1570-1625: A Preliminary Study," *History of Science* 42 (2004): 137–88; Christopher Baker, *Absolutism and the Scientific Revolution, 1600-1720: A Biographical Dictionary* (Greenwood Publishing Group, 2002); Bruce T. Moran, "Courts and Academies," in *The Cambridge History of Science: Volume 3, Early Modern Science*, ed. Lorraine Daston and Katharine Park (Cambridge: Cambridge University Press, 2006), 251–71.

through his network of contacts amplified the *Mechanica*'s effect. This Chapter locates the potency of this gift in its status as a printed book containing extraordinary images of his mathematical instruments, which allowed its production and dissemination in numbers among Brahe's contacts and brokers, who belonged to a community of well-connected scholars and aristocrats. In this way Brahe was able to transform the technology of print to his own ends.

A Gift of knowledge: the *Astronomiae instauratae mechanica* (1598)

On 30 August 30 1599, Brahe wrote to his advisor Holger Rosenkrantz (1574-1642)—a Danish noblemen, friend, and scholar—who had advised him on possible patronage opportunities. Tycho Brahe recounts in detail his exchange with the Emperor Rudolf:

> "…After a few days the Emperor had me called to his castle….and [I] went in to the Emperor alone and saw him sitting in the room on a bench with his back against a table, completely alone in the whole room without even an attending page. After the customary gestures of civility, the Emperor immediately called me over to him with a nod, and when I approached him he graciously reached out his hand to me. I then drew back a bit and gave a little speech in Latin, in which I said that I had been called at his gracious command by a letter from Prochancellor Conrraducius and was now here…[and that] he might support and patronize with his imperial favour me and the research I had conducted long and well. Therefore I wanted humbly to leave with him, himself, some documents from the archbishop of Cologne and the duke of Mecklenburg, which he also benevolently received and opened in my presence. But he laid them on the table without reading them and immediately responded to me graciously with a more detailed speech than the one I had delivered him, saying among other things, how agreeable my arrival was for him and that he promised to support me and my research, all the while smiling in the most kindly way so that his whole face beamed with benevolence. I could not take in everything he said because he naturally speaks very softly. I then thanked him humbly for this proof of his grace and mentioned the three books I had brought with

> me to give him with the utmost deference. When he [the Emperor] graciously responded that he would accept them I immediately fetched them from my son Tycho, who had them where he was waiting in the antechamber…When he took them and laid them out on the table, I reviewed the contents of each briefly. Then the Emperor again responded with a splendid speech, saying most graciously that they would please him greatly."[373]

The above portion of the much longer description of Brahe's initial encounter with the Emperor, a moment that Brahe had been anxiously anticipating and preparing for many months, culminates not with Emperor's agreement to support the astronomer and his research, as would be expected. The letter emphasizes the Emperor's enthusiastic acceptance of Brahe's gift of the *Mechanica* and the two accompanying manuscripts. The description of the interaction also highlights the unusual fact that Rudolf met with Brahe alone and that from the beginning of their interaction the Emperor was well disposed towards the astronomer and his work. Indeed, at the beginning of the letter to Rosenkrantz, Brahe mentions that Johannes Barvitius (the Emperor's private secretary) "greeted me with a hearty welcome in the name of the Emperor, the Senate, and himself," reporting that "the Emperor had just heard of my arrival and said many times how well disposed the Emperor was towards me, even though he had not met me personally."[374] The account tells us that the Emperor did not immediately read the letters Brahe had brought, although Rudolf's advisor, Barvitius had seen them a few days prior and would have likely discussed their content with the Emperor.[375] Therefore, it seems Rudolf's

[373] Thoren, *Lord of Uraniborg*, 412-13.

[374] Ibid., 410

[375] Mosley, *Bearing the Heavens,* 136.

decision to appoint Brahe as Imperial Mathematician had already been put into place and preceded the interaction described above.

How did Brahe secure the Emperor's favour before even presenting the gift of the *Mechanica* to him? As alluded in the introduction of this Chapter, Brahe's *Astronomiae instauratae mechanica* should be understood in relation to the goals of astronomy in the sixteenth century, which sought a reform, a renewal, or an instauration of astronomy. By making the novel claim—in the very title of the book and throughout—that Brahe's instruments were the key agents in this transformation of the science, Brahe was participating in current debate, ensuring the book's appeal. The self-conscious uniqueness of his approach—centered upon better instruments and repeatable observations done by multiple observes—as presented in the gift of the *Mechanica* to his network of brokers, would have given Brahe renown and would have made the final gift of the book to the Emperor particularly effective. Thus, while Brahe's methods point towards a modern approach to science that prizes experience, repeatability, and accuracy; his transformative contributions to astronomy and his transformation of print into patronage, bring to mind the magus—who transforms basic matter to a grander or more precious state. Every aspect of the *mechanica* must thus be seen in relation to this context and to Brahe's professed goals of the purification of astronomy, as explained in more detail later in this Chapter. In what follows I first address the general content of the *Mechanica*.

The *Astronomiae instauratae mechanica* (1598)

The idea of the magus who, as I argue, brings perfected knowledge of the heavens to earth, transforming it into printed knowledge that can be disseminated and used to

improve astronomy functions as a frame for the content of the *Mechanica*. A frontispiece with the title of the book in red and black majuscule letters and an allegory of astronomy, with the motto *Suspiciendo despicio* ("by looking up, I look downward"), introduces Brahe's instauration of astronomy (Fig. 32). The reciprocal notion, *Despicio suspiciendo*, ("by looking down, I look upward"), is echoed in the last page of the book, functioning as the allegory of alchemy, another of Brahe's interests (Fig. 33). These two pages refer to the Paracelsian view of the universe that sees alchemical links running between the cycles of the heavens and the changes of earthly life and establish the connection between astronomy and alchemy.[376] In other words, the parallel between the two pages that frame the *Mechanica* point to the transformation in which Brahe, as the magus who had invented new and more reliable instruments, grounds the material otherworld (the heavens) and makes it tangible in the form of measurements obtained through his specific methods and instruments.

On the verso of the frontispiece, Brahe, himself is introduced by an engraving of his likeness executed by the well-known engraver Jacques de Gheyn (1565-1629), made in 1586 (Fig. 34).[377] Brahe likely had a large number of these portrait prints produced to use for his publications and also to present to friends. Since some of the copies of the *Mechanica* have a watercolor portrait of Brahe, it is possible that he ran out of the engraved image and replaced it with a painted portrait (Fig. 35). The painted portrait, by

[376] Thoren and Christianson, *The Lord of Uraniborg: a Biography Tycho Brahe,* 213. For a discussion of Brahe's Paracelsianism see, Jole Shackelford, "Tycho Brahe, Laboratory Design, and the Aim of Science: Reading Plans in Context," *Isis* 84 (1993): 211–30.

[377] Adam Mosley, Nicholas Jardine, and Karin Tybjerg, "Epistolary Culture, Editorial Practices, and the Propriety of Tycho's Astronomical Letters," *Journal of the History of Astronomy* 34 (2003): 421–51. This portrait may also be found in many of the copies of Brahe's *Epistolae astronomicae* (1596).

an unknown artist, portrays Brahe at the age of 52 (as indicated by the inscription) and was thus likely made in 1598, around the same time the *Mechanica* was printed.[378] The accompanying inscription identifies Brahe as the founder of the observatories on Hven and also as *an inveritor[is]et structor[is]* (inventor and maker) of the mathematical instruments presented in the *Mechanica*.[379] In this way, Brahe formally lays claim to the knowledge presented in the book.

Following the portrait of the book's author, the reader is addressed by a four-page preface and dedication to Rudolf II, in which Brahe outlines his methods in astronomy. Above all, in this section Brahe highlights the prestige of astronomy in connection to the sense of sight and the importance of instruments in aiding vision. He states, "…in astronomy it is first of all necessary to obtain very many observations, taken over a long period of time by means of instruments that are not liable to error."[380] Brahe then discusses knowledge and observations obtained by astronomers of the past, highlighting the instruments they used of which he approves—those that are most accurate: the

[378] Hasselberg, "Bemerkungen über Mechanica," 186-7. Hasselberg suggests that only the fine copies of the *Mechanica* contained this painted portrait. He also suggests that the painted portrait of Brahe may be based on a recently discovered painting at the Edinburgh observatory. This painting is included in copies of the *Mechanica* held at the Strahov Monastery Library in Prague, at the Royal Library of Copenhagen, and at the Cathedral Library in Kolocsa, Hungary. The portrait presents a half-length figure of Tycho Brahe framed by an oval medallion decorated by scrolls and various architectural elements. At the top of the medallion, above Brahe's head, are two putti that frame an inscription (Brahe's motto) that reads *Esse potius, quam hareri* [Better to be than to seem to be]. Below Brahe is a smaller medallion that contains Brahe's coat of arms, framed on either side by figures of Copernicus (to Brahe's right) and Ptolemy (to Brahe's left). The figures of the putti and philosophers are pained in gold. This portrait appears to have been glued into the book after it was printed.

[379] Joaneath Spicer, "Referencing Invention and Novelty in Art and Science at the Court of Rudolf II," in *"Novità" Neuheitskonzepte in Den Bildkünsten Um 1600*, ed. U. Pfisterer and G. Wimböck (Zürich: Diaphanes, 2011), 401–24.

[380] Brahe, *Instruments of the Renewed Astronomy,* 4.

parallactic rulers, zodiacal armillaries, and the torquetum.[381] He then points out the insufficiencies of these instruments, their "defects of every kind," that led to many inconsistencies of the locations of the heavenly bodies.[382] Brahe emphasizes that he "went to the trouble of successively constructing astronomical instruments with great care and unbelievable expense."[383] His instruments, Brahe insists, are more accurate for examining stellar phenomena because they are "larger and more excellent," and they "exhibit the highest accuracy and dependability."[384] Accuracy, dependability, and repeatability are the most important aspects of his contribution, notions to which he frequently refers throughout the book.

Brahe goes on to explain his methods in more detail. In order to "prove observations free of error by investigating the same [measurement] by different means," it was necessary to construct "various and multiple instruments."[385] He adds that if "any produced any hidden defect, others would then be at hand, which would correct it and demonstrate their exact dependability."[386] Lastly, Brahe explains that in order to obtain greater accuracy, multiple instruments were needed that could facilitate the work of six to eight researchers conducting experiments and taking measurements simultaneously.[387]

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[381] Ibid., 5.

[382] Ibid., 6.

[383] Ibid.

[384] Ibid.

[385] Ibid.

[386] Ibid.

[387] Ibid., 7.

Brahe adds to this last bit that, this is "a delightful process" in itself.[388] In a unique manner, Brahe is responding to the fashion of the period that saw astronomy as being in need of an instauration. He insists upon the need for multiple observations that can only be taken by new and improved instruments and with the help of a team of assistants and researchers. He thus draws attention to the importance of collaboration and scientific community in the quest for accurate positions of heavenly bodies. Therefore, Brahe's emphasis on the repeatability of his observations and instrument design by multiple people is a notion that coincides with what is often associated with the empirical and modern approach to science.[389]

After the introductory remarks outlined above, Brahe states his purpose behind publishing the *Mechanica*: he claims that the motivation for the creation of the *Mechanica* lies in his desire to share with the public and with posterity his instruments and their use:

> "Seeing that those things that are invented and built by men in the exercise of the arts should be communicated, for a liberal society of human beings and for the propagation of the arts to posterity, I considered that so sublime and useful devices should not be reserved for me alone, but shared with others, if (as I hope) there are those to be found in other places, who are touched by so difficult a concern. And to that end, I am submitting to the press those devices, which I have had in use hitherto, delineated and represented by their images.... I wished to present them to the public accompanied by a concise explanation of each of them..."[390]

Based on this account, it would seem that Brahe intended for others who pursue astronomy to replicate his instruments and use them for the purpose of measuring the

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[388] Ibid.

[389] Daston, "The Empire of Observation, 1600-1800," 93-95.

[390] Brahe, *Instruments of the Renewed Astronomy*, 7.

heavens. However, while reproduction of Brahe's instruments based on the descriptions in the *Mechanica* may have been possible for some experts in the field, it should be noted that the *Mechanica*'s images of instruments and accompanying descriptions work to draw attention to Brahe's methods in astronomy. Therefore, Brahe's gift to posterity lies in the dispersal of his methods, which centered on his instruments (and not the replication of his instruments).

The dedicatory preface described above is followed by a poem composed by Brahe's friend and correspondent, Holger Rosenkrantz (1574-1642). The poem exalts Brahe, while making references to those who are envious of his achievements and have tried to claim his work for theirs.[391] Rosenkrantz is probably referring to Nicholas Raimarus Bär, also known as Ursus, who after plagiarizing Brahe's work after a visit to Uraniborg in the 1580s became Rudolf's mathematician. Ursus escaped a potentially awkward situation by fleeing Prague prior to Brahe's arrival.[392] The inclusion of the poem in the *Mechanica* discredits Ursus and lays claim to Brahe's position as the future imperial mathematician.

Following the poem are eighteen woodblock prints and four engraving of Brahe's astronomical instruments and their corresponding descriptions: the image of the instrument occupies the *verso* and its accompanying description and use is printed on the

[391] After a visit to Uraniborg, Ursus published Brahe's Tychonian system as his own in *Fundamentaum astronomicum* (1588, Strassbourg),

[392] The affair with Ursus was an enormous source of angst for Brahe, who worked hard to discredit him, see Nicholas Jardine et al., "Tycho v. Ursus: The Built-up to a Trial: Part 1," *Journal for the History of Astronomy* 36 (2005): 81–106; Ibid., "Tycho v. Ursus: The Built-up to a Trial: Part 2," *Journal for the History of Astronomy* 36 (2005): 125–65; Owen Gingerich and Robert S. Westman, "Reconstructing the Universe" in *The Wittich Connection: Conflict and Priority in Late Sixteenth century* (Philadelphia: The American Philosophical Society, 1988), 50-68.

recto, so that the reader may easily look back and forth between image and text.[393] Both illustration and writing are neatly framed by a decorative frame that is painted red, green, or sometimes yellow (depending on the copy). As described in the dedicatory preface, Brahe systematically explains the order of the instruments as follows: the first eight instruments investigate altitudes and azimuths (some only one of the two, some both). He begins with the smaller instruments, followed by the grander ones, which as he emphasizes are more precise. In order to make his gift of the *Mechanica* appeal to his network and potential imperial patron, Brahe makes frequent references to the precision and reliability of his instruments.

Poems and letters are included in the *Mechanica* in order to further establish Brahe's standing as a reliable astronomer. Thus following the section that illustrates the instruments is another poem, written by Francis Gansneb Tengnanagel, a former pupil, collaborator, and Brahe's son in law. Next follow two pages of brief descriptions of seven other smaller instruments, without accompanying pictures, as well as plans for future instruments. The twenty-second image is an engraving of Brahe's great brass globe, followed by a nine page autobiography that describes Brahe's accomplishments in astronomy, titled "On that which we have accomplished thus far in astronomy with God's help, and on that which with his gracious aid has yet to be completed."[394] After this, in the appendix, Brahe includes three transcribed letters. The first is by Jacobus Curtius (1590), another by Johannes Antoni (1590), and the third by Antonius Maginus Patavinus (1592). After the transcribed correspondence, Brahe includes another two-page poem by

[393] The vast majority of the woodblocks had already been published in a pamphlet Brahe made in 1596, which included eighteen woodcuts of his instruments, see Christianson, *On Tycho's Island*, 220.

[394] Brahe, *Instruments of the Renewed Astronomy*, 117-136.

Andreas Chioccus Veronensis. The letters and poems can be said to function as Brahe's references and their placement in the *Mechanica* as frames—that is, at the beginning and end of his autobiography—augment the credibility of Brahe's claims about his work.

In order to more fully demonstrate his methods and to show to his future patron the type of establishment that would be required in order for Brahe to continue his extraordinary work in astronomy, Brahe includes prints of his grand observatories on the Island of Hven, along with written text that describes the structures at length.[395] He also includes a poem in which he laments his forced desertion of Uraniborg and Stjerneborg. As if to reconcile himself with exile he writes, "…perhaps it was so decided by the High Powers watching God inspired thoughts. In order that the great tasks shall not be confined within narrow barriers they stir up everything earthly and have it changed in every manner. Glory be to you alone who governs the rotation of the heavens and the stars."[396] The poem insinuates that it was the will of God for Brahe to come to Prague and share his knowledge of astronomy, his skills, and instruments with the Emperor.

The section that features his grand astronomical facilities is particularly important because these structures house his instruments, which as I established were the key agents in Brahe's renewal of astronomy. These pages are devoted to the explanation of the design of Uraniborg (Fig. 36). In the title of this section, Brahe adds "…built for the redintegration of astronomy by Tycho Brahe about the year 1580."[397] On the verso is an engraving of the façade of Uraniborg and includes a view of the underground passages

[395] Ibid., 137-40.

[396] Ibid., 144.

[397] Ibid., 145.

where alchemical procedures were conducted and a ground plan with an explanation of its constituent parts (Fig. 37). The next two pages feature the design of Stjerneborg, a subterranean observatory that Brahe had built in 1584 to accommodate some of his larger astronomical instruments (Fig. 38). In the accompanying text, Brahe includes a passage that was originally inscribed on the southern aspect of the portal in gold letters on porphyry, addressing the need to purify astronomy. The images of Stjerneborg are followed by a woodcut of the island of Hven by Willem Janszon Blaeu, along with explanations and descriptions of particular locations, such as that of Uraniborg, Stjerneborg, the village, and Brahe's paper mill (Fig. 39).[398] A page with an addendum titled "of the subdivisions and diopters of the instruments" follows as well as an ode to Tycho Brahe, written by Rudolphus Caukerchius Sylvidux Belga.[399] Overall, this section pictures a utopian vision of the observatories on Hven, offering a virtual witnessing of Brahe's practice. Brahe's presentation of his impressive palatial observatories that contained his instruments and delineate the space where astronomy was performed reinforce the validity and reliability and grandeur of his work. Brahe included these pictures in order to clearly demonstrate to his future patron that in order to achieve worthy results in astronomy, a grand facility was necessary.

Through the constellation of presented instruments, letters, poems, narrative written detail, and observatories that are brought to our attention through the medium of

[398] The map of Hven was a woodcut printed in 1596 for Brahe's correspondence volume, *Epistolarum Astronomicarum liber primus* (1596). According to Christianson, this map was the first ever to be based on surveying by triangulation, *On Tycho's Island*, 134.

[399] Brahe, *Instruments of the Renewed Astronomy*, 161-65.

print, Brahe convinces us of his legitimacy and the great import of his work in instituting a restoration of astronomy.

The instauration of astronomy

The *Mechanica* is devoted to presenting Brahe's instruments and his methods—the latter being visually presented to us in the fifth printed instrument of the *Mechanica*, the copper-plate engraving of Brahe's *Mural, or Tychonian Quadrant* (Fig. 40). This picture is different from all the other printed instruments because it displays a narrative of the astronomer's methods. As Brahe describes in the accompanying text, the engraving depicts the wall quadrant with a mural painted by Tobias Gemperlin, which once graced the walls of one of his studies at Uraniborg. In front of the instrument we see three of Brahe's assistants, one is seated at a desk noting measurements that are being called out to him by another assistant who appears to be reading the time from two clocks placed in front of the quadrant. On the right edge of the print, another assistant is shown peering through the pinnule of the quadrant. The instrument proper acts as a threshold between the portrayal of real space and the illusory space of the mural that serves to extend the room and contextualizes the work being done in front of it. Behind the quadrant, Brahe's large figure is portrayed seated at a desk. He is attired in courtly dress, pointing with his right hand towards the small rectangular opening in the wall, through which heavenly bodies are being measured. On top of the desk lie rulers and a compass. The wall behind him supports two shelves stacked with books, emphasizing the importance of printed knowledge. Below is a niche with a globe, framed on either side by an oval portrait medallion. In the accompanying written description of this image Brahe tells us that the

portraits are of King Fredrick II of Denmark and his consort and that the globe is an automaton that he had given to them as a gift.[400] The arrangement of the two regents framing the figure of Brahe, works to emphasize the importance of the patron-client relationship, facilitated through gift exchange.[401]

The picture that appears behind the figure of Brahe informs us of the type of work conducted at Brahe's observatories, presented in tiered views covered by double arches. In the top tier, some of Brahe's instruments are shown, located outside on a patio enclosed by a stone railing. The middle tier depicts an indoor space separated by his *Great Globe* (also pictured as the twenty-second instrument in the *Mechanica*). On either side we see tables at which Brahe's assistants appear to be working in collaboration. The lowest tier of the picture shows an underground laboratory with flasks and furnaces and a figure of a man. Finally, at Brahe's feet we see a dog, which Brahe describes as being one of his most loyal. Its presence alludes to Brahe's loyalty to the King and in turn the King's loyal patronage of Brahe, a necessary requisite for the advancement of astronomy. Overall the picture of the *Tychonian Quadrant* serves the narrative function of

[400] Brahe proudly describes the mechanism of this globe as follows: "Above the head near X a gilded brass globe is mounted, in the interior of which wheels are ingeniously placed, so that it can revolve and imitate the diurnal rotation and also represent the course of the sun and the moon in the opposite direction as seen from he poles of the ecliptic, so that even the changing phases of the moon, with its growing and diminishing light, are shown. The sun, turning inside 24 hour circles, according to the diurnal revolution around the equatorial axis, in addition to its own motion, indicates the single hours of the day, and also the times of sunrise and sunset as well as the transits over the meridian, to the south and north. This ingenious mechanism, which I invented myself and had constructed at my own expense, I humbly presented in the year 1590 [should he 1592] to His Majesty Christian, at the time King Elect, my most gracious lord, when seven years ago, in his fourteenth year, he was good enough graciously to visit me at Uraniborg on the island of Hven," Brahe, *Instruments of the Renewed Astronomy*, 32-3.

[401] Brahe adds that in return he was given the gift of a golden chain from the King, "a magnificent work of art, of the kind which he was at the time wont to wear, beautifully worked and adorned with his own portrait," Ibid., 33.

highlighting Brahe's methods, emphasizing the importance of observation, patronage, collaboration, loyalty, and of course his instruments.

Brahe's most important contribution to the renewal of astronomy, as pointed out by Gabor Almási, is his development of a "new astronomical discourse in pursuit of credibility" that gives "priority to observational astronomy and natural philosophical questions."[402] In other words, similar to the ultimate goal of the alchemist, who aims to transform basic materials into more precious ones, Brahe transforms older and impure astronomy into a purer state; in doing so he makes it appeal to an interested public (his network of supporters), and through them to Rudolf himself. As we shall see, Brahe also successfully extends this transformation to benefit himself, just like the magus who stands to get richer through his transformation of metal into gold, Brahe too stands to benefit through his clever manipulation of his patronage network, an act that leads to imperial patronage.

The promise of a new astronomy would have appealed to Rudolf whose support of this science was well known and should be related to the general quest of the sixteenth century to renew the science. However, Brahe's *Mechanica* was not the first (nor the last) to express the intent to reform astronomy.[403] At this time, interest in the improvement of astronomical data was promoted by the interest in both judicial and natural astrology.[404]

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[402] Gábor Almási, "Tycho Brahe and the Separation of Astronomy from Astrology: The Making of a New Scientific Discourse," *Science in Context* 26, 1 (2013): 3

[403] For example, in the dedication of his treatise, *Ephemerides novae et exactae* (1556), Johannes Stadius emphasizes "that the theory of celestial motion needed correction and existing ephemerides failed to agree with reality," Ibid.,5. See also Paul Lawrence Rose, *The Italian Renaissance of Mathematics: Studies on Humanists and Mathematicians from Petrarch to Galileo* (Geneva: Droz, 1976).

[404] For a discussion of the two types of astrology see T. J. Tomlin, *A Divinity for All Persuasions: Almanacs and Early American Religious Life* (Oxford University Press, 2014), 30-56 .

Astrology and astronomy were intimately connected, with the former relying on the latter. Predicting accurate nativities and horoscopes and explaining terrestrial effects could only be achieved through precise tables that offered accurate positions and movements of planetary bodies.

Between the twelfth and the sixteenth centuries, astronomers were preoccupied by the failings of astronomy, particularly that of planetary motion, the incorrect length of the solar year, imprecise lunar tables, and the inaccuracies of the Julian calendar.[405] They believed that the inaccuracies resulted from the passage of time that caused decay of the perfect knowledge that had been given to humankind by God at the beginning of history. In fact, at the beginning of the Renaissance it was generally believed that astronomy was the most pure in its antediluvian form and that people should seek to return to ancient knowledge as it had been before the Flood.[406] As Daniel Špelda explains, "this assumption also gave rise to the great popularity of such terms as *restitutio*, *restauratio*, *emendation*, or *instauratio*. The use of these terms expresses the widespread perception at that time that astronomy was facing a crisis and that it had to return to its antique roots from which it had grown."[407] However, as a result of ongoing engagement with nature

[405] As James Steven Byrne describes, Conrad of Strassbourg, Robert Grosseteste, Roger Bacon, Firmin of Belleval, Jean de Murs, Pierre d'Ailly, Nicholas of Cusa, and Richard Monk had all expressed their discontent with the current calendar, and the popes Clement IV (1265-68), Clement VI (1342-52), and Sixtus IV (1471-1484), as well as the antipope John XXIII (1410-1415), made efforts to promote a reform of the calendar, see *The Stars, the Moon, and the Shadowed Earth: Viennese Astronomy in the Fifteenth Century* (Phd Dissertation: Princeton University, 2007), 39. See also J. D. North, "The Western Calendar - *Intolebarilis, Horribilis et Derisibilis* - Four Centuries of Discontent," in *Gregorian Reforms of the Calendar*, ed. G. V. Coyne, M.A. Hoskin, and O. Pedersen (Vatican: Specola Vaticana, 1983), 80-97.

[406] Daniel Špelda, "The Search for Antediluvian Astronomy: Sixteenth and Seventeenth Century Astronomers' Conceptions of the Origins of the Science," *Journal of the History of Astronomy* 44, no. 156 (2013): 337.

[407] Ibid., 38.

and technological innovation, by the second half of the sixteenth century naturalists and astronomers began to move away from ancient sources and began to pose questions, and to seek answers, which could not be answered by studying texts written by ancient authorities.[408]

For example, in the fifteenth century the mathematician Johann Müller (1436-1476), known as Regiomontanus, was called upon by Pope Sixtus IV in 1476 to reform the Julian Calendar.[409] Being inspired by a renewed interest in Ptolemy's *Almagest*, and in order to correct the errors of the medieval astronomical tradition, Regiomontanus developed a general framework for the practice of astronomy. As Byrne notes, Regiomontanus' navigated a complex patronage environment and exploited print culture to achieve acclaim. His humanistic vision of astronomy remained vital tools for his successors in the following centuries.[410] The framework established by Regiomontanus was a key step for the advances in astronomy that occurred in the sixteenth century.[411] Brahe's ambition to renew astronomy derives from the framework established by Regiomontanus to which Brahe would have had access through Regiomontanus's published books.

Brahe's self-professed participation in the renewal or reform of astronomy can be noted in the autobiographical section of the *Mechanica*, where he describes what he has

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[408] Brian W. Ogilvie, *The Science of Describing: Natural History in Renaissance Europe* (Chicago: University of California Press, 2006), 28-29.

[409] On Regiomontanu's contributions more generally, see, Clayton J. Drees, *The Late Medieval Age of Crisis and Renewal, 1300-1500: A Biographical Dictionary* (Westport: Greenwood Publishing Group, 2001), 546.

[410] Byrne, *The Stars*, 262-63.

[411] Ibid.

hitherto accomplished and what he plans to accomplish in the future, emphasizing that ever since his youth he has been devoted to the quest to reform astronomy. He outlines the moment when he first noticed errors in the tables that were then used for deciphering the positions of the planets. He states "…I noticed already at that time using only the small celestial globe, that their positions in the sky agreed neither with the Alphonsine nor with the Copernican tables…I no longer trusted the ephemerides, because I had realized that the ephemerides of Stadius, at that time the only ones that were founded on these numbers, were in many respects inaccurate and erroneous."[412] Many years later, he inscribed a passage on the entryway to Stjerneborg, his underground observatory on Hven, outlining his overall quest. The inscription is reproduced in the *Mechanica* and accompanies the description of his observatories in the appendix of the book. It reads as follows:

> "…Tycho Brahe, Son of Otto, who realized that Astronomy, the oldest and most distinguished of all sciences, [and which] had indeed been studied for a long time and to a great extent, but still had not obtained sufficient firmness or had been purified of errors, in order to reform it and raise it to perfection, [Tycho Brahe] invented and with incredible labour, industry, and expenditure constructed various exact instruments suitable for all kinds of observations of the celestial bodies, and placed them partly in the neighbouring castle of Uraniborg, which was built for the same purpose, partly in these subterranean rooms for a more constant and useful application, and recommending, hallowing, and consecrating this very rare and costly treasure to you, you glorious Posterity, who will live for ever and ever…"[413]

Brahe clearly reveals that he constructed his "various exact instruments," placing them in his observatories in order to reform the failings of astronomy, and to return the science "to wholeness and hand it down to posterity more correct than any time before." He

[412] Brahe, *Instruments of the Renewed Astronomy*.

[413] Ibid., 153-54.

intended to do so by constructing instruments that would yield more accurate results, purifying astronomy of its errors, and thus raise it to perfection.[414] In an attempt to illustrate his key role, Brahe implies that he would be the one to restore astronomy, for it is he alone who has access to precise and reliable devices that were not available to astronomers of the Middle Ages and Antiquity.[415] Brahe's renewal of astronomy thus directly hinges upon his instruments. In what follows I address the representation of instruments in Brahe's *Mechanica*.

Instrumental images

The *Mechanica* set a new precedent for the publication of independent treatises devoted to the description and illustration of mathematical instruments.[416] In this book, Brahe presents to the viewer individual instruments of his own design. Prior to its publication, no other published text brought together a collection of instruments accompanied by their detailed description. While securing his place in the history of astronomy, Brahe's presentation of instruments functioned to share with his network of correspondents, and with Rudolf II, his observational and instrumental astronomy.[417] While each image is accompanied by a description of the instrument and its use, I argue that overall Brahe's goal of an instauration of astronomy—accomplished through the use

[414] Špelda, "The Search for Antediluvian Astronomy," 342n33.

[415] Ibid.

[416] Christianson, *On Tycho's Island*, 224. See also Jim Bennett, "Early Modern Mathematical Instruments.," *Isis* 102, no. 4 (December 2011): 700; Bennett, "Instruments and Illustrations in Eighteenth-Century Astronomy," in *Science and the Visual Image in the Enlightenment* (Canton, MA: Science History Publications, 2000), 137–54.

[417] Bennett, "Instruments and Illustrations."

of new and improved instruments and through repeated measurements done by multiple observers—is evinced in the manner of the instrument's presentation. In this way Brahe can be said to be the magus who transforms and improves the corrupt state of sixteenth century astronomy. In what follows I discuss and give examples of some of the visual mechanisms that emphasize the viewer's engagement with the printed instrument.

The vast majority of the instruments pictured in the *Mechanica* function as portraits, featuring individual instruments to which our attention is drawn through specific pictorial devices.[418] Generally speaking, the full-page illustrations of Brahe's instruments are depicted occupying a simple space with a background and are not located in a vacuum. Sometimes they rest on a piece of turf, or on a checkered floor with sharply receding orthogonals. Other times they occupy a flat space with a low horizon line, or sit within a recessed architectural rotunda inside a crypt. Most of the illustrations include a portion of the sky and stars. Only two instruments do not occupy any fictive space, their background is left blank. A rectangular black line frames most of the pictures of instruments. Above the frame majuscule letters denote the name and function of each instrument, surmounted by a decorative strip of grotesques. An ornamental frame holds these elements in place. The only exception to this general scheme is presented in the fifth illustration, the *Mural, or Tychonian, Quadrant,* which as I discussed above illustrates Brahe's methods. Different components of the instruments are labeled with small letters, which serve as reference points in the accompanying text that elucidate the use of the instruments.

[418] Ibid., 138.

The instruments are presented in a manner that serves to draw attention to the instruments proper. The majority of the instruments are portrayed outdoors, set against a dramatic sky that moves from nearly white, at the horizon, to a dark blue towards the top of the picture plane. In most cases the foreground either consists of a non-specific flat platform, which at times takes on architectural elements. Thus, for example, the pictures of the *Astronomical Sextant for Measuring Altitudes* and the *Parallactic or Ruler-Instrument* are shown on a flat surface to which lead a set of steps (Figs. 41 and 42). The outdoor setting is suggested in some prints through the depiction of green turf, as exemplified in the illustration of the first instrument, the *Small Quadrant of Gilt Brass* that sits on a stand made of stone (Fig. 43). In this picture the quadrant is placed at the center of a nearly symmetrical green mound.

Other instruments are shown to occupy an indoor space. For example, the *Sextant Mounted for the Observation of Altitudes* and the *Medium Sized Azimuth Quadrant of Brass* are shown standing on a surface that is checkered (Figs. 44 and 45). Through the use of linear perspective the checkers appear to be receding sharply into the distance behind the instruments. This is particularly noticeable in the former of the two instruments, where the checkers appear to continue far behind it and also give the illusion that the instrument is being pushed towards the foreground.

Instruments that appear to be set simultaneously indoors and outdoors were located in the underground crypts at the observatory in Stjerneborg, as Brahe describes in the accompanying text. The purpose of the enclosed crypts was to protect the larger instruments from the elements. The sixth and seventh instrument in the *Mechanica*, the *Revolving Azimuth Quadrant* and the *Great Steel Quadrant* respectively, are depicted in a

manner that allows the viewer access to not only the interior of the crypt that features the entire instrument, but also to its exterior—the darkened sky (Figs. 46 and 47). The viewer is thus given near complete access to the instrument and the space it occupies.

Another method that serves to emphasize the instruments proper and also contributes to the impression that the images are not an accurate depiction of reality is the incorrect use of linear perspective. This was alluded to in the introduction of this Chapter where the *Equatorial Armillary* is described and the apparent disjointedness between the head of the instrument and its body, caused by an adherence to conflicting perspectives. A similar disjointedness may also be noted in the aforementioned *Medium Sized Azimuth Quadrant of Brass*. In this picture the base that supports the instrument composed of five plinths and a donut shaped stool that envelopes the central tube of the instrument appears to be leaning forwards. If our vantage point allows us to see so much of the surface we should also be able to view more of the top of the green plinths that support the quadrant. Another perspectival inconsistency is the manner in which the plinths are oriented, particularly the one closest to the observer—its base appears to be strangely twisting to the left.

Overall the presentation of instruments—achieved though structured outdoor and indoor scenes and through the incorrect use of perspective that causes a distortion in their portrayal—works to draw the viewer into the image and ask us to pondered them more closely. Rather than sacrificing clarity, it allows the viewer a greater degree of unobstructed access to the instrument that would not be possible if correct linear perspective were used.

Another feature that encourages detailed viewing of the printed instruments is the use of ornament. Overall it may be noted that ornament is used sparingly. It is generally restricted to the base of the instruments, or the transition between the head of the instrument and its base. For example, one of the more decorative bases may be noted in the aforementioned *Medium Sized Azimuth Quadrant of Brass*, where aside from the plinths that contain minor geometric designs, we can see scrolling ornamental serpents that act as supportive elements for the quadrant proper. The serpents appear to attach the quadrant to the horizontal azimuth right below it. This instrument also has alidades that appear to be decorated with winding leaf motifs and scrolls.[419] Due to its restriction to the base, the ornament serves to contrast and draw attention to the instrument proper that is undecorated, to the part that does the measuring. A similar mechanism is at play in the *Equatorial Armillary*, with its decorative scrolls, undulating patterns and two small figures as described in the introduction of the Chapter.[420]

I should add that certain decorative elements on some of Brahe's instruments fulfill an iconographic role. For example, the *Great Azimuth Semicircle* has three figures, labeled D A B, respectively, each standing on its own separate ledge that is attached to a scrolling motif (Fig. 48).[421] Brahe describes that the figure that is placed highest is

[419] Simply put, the alidade is the element that contains pinnules at either end through which the astronomer looks to make measurements and then reads the corresponding minutes inscribed on circular portion of the quadrant. In the picture of the instrument under discussion, the two alidades are the components labeled DE and KM.

[420] In the accompanying description we are told that these two figures represent Copernicus and Brahe himself. As Brahe describes, on the back of the actual instrument—something that is not visible in this picture—were also figures representing Ptolemy and Al Battani, Brahe, *Instruments of the Renewed Astronomy*, 65. The inclusion of these small figures functions to decorate the base of the instrument, and offers a didactic element, reminding the user of the instrument of Brahe's important role in the history of astronomy.

[421] Brahe describes these figures as being "artfully carved out of strong wood…and their purpose is not only for ornament, but alo that they should represent a symbolic meaning," Ibid., 46.

Urania and represents Astronomy. She holds a sphere of the celestial revolutions, and with her left hand Brahe states that she is receiving the things that are extended towards her by the two women who stand on the two ledges below, and who are in her service. The figure of a woman standing below and to her left represents Geometry. She holds a triangle that she offers to Urania, indicating, as Brahe describes, "that she is serving Astronomy by measurement and by mechanical construction, and also by the learned science of Trigonometry."[422] Finally the figure to the right of Geometry represents Arithmetic. As Brahe describes, she holds a piece of chalk in one hand and a tablet in the other, "expressing hereby that she represents the numbers which Astronomy needs in order to be understood, and that she analyses into discrete quantities that which Geometry first proved by general mathematical relations."[423] The iconographic message is quite clear and indicates that Astronomy is the highest of the liberal arts.

Overall, each one of Brahe's prints portrays a unique and one of a kind portrait of his instruments. Through composition, use of space and perspective, and through limited use of ornament, the images direct the viewer's sight, provide visual pleasure, and demand close looking. The printed instruments do not declare their purpose, but ask the viewer to inspect, paralleling the instrument's actual use as tools for the observation of the heavens. The use of gold leaf emphasizes the metallic materiality of the instruments.

The prints of Brahe's instruments present the essential tools of Brahe science; without them Brahe would not have left his mark on the history of astronomy. The instruments also functioned as tools for self-promotion. In printed form they were

[422] Ibid.

[423] Ibid.

circulated among a much larger audience. They functioned to impress upon the viewer/reader the ingenuity of their design, their quality, reliability and convenience of use, and their agency in purifying the science of astronomy—Brahe's goal, as embodied by the *Mechanica* as a whole. In giving the *Mechanica*, Brahe thus gives the gift of an improved astronomy. He positions himself as the magus who is responsible for astronomy's transformation, achieved though his pretelescopic method, and through the acquisition of knowledge obtained by repeated observations and measurements of the heavenly bodies. As the magus who brings about the instauration of astronomy, Brahe also manipulates the patronage system, assuring for himself a place at Rudolf's court as Imperial Mathematician.

While addressing the sixteenth century quest for a renewed astronomy, to which Brahe very self-consciously laid claim, the present section has described the content of the *Mechanica*, including the manner in which Brahe's instruments address the viewer. However, in order to understand the appeal of the *Mechanica* to an aristocratic patron such as Rudolf II, the gift of the *Mechanica* must also be related to the overall interest in instruments and technological subjects among princely patrons more generally.

Instrument books in the age of absolutism

In the early modern period, presenting dedicated treatises and books to illustrious patrons with emphasis on quality, splendor, originality, and innovation made such items particularly appealing among royal collectors. Within the courtly context, manuscript books were collected as precious items that also participated in the general quest for

knowledge.[424] Therefore, picture manuscripts and technical treatises had been targeted at a courtly audience as early as the fifteenth century.[425]

The books presented to illustrious patrons also participated in the well-established system of gift and obligation. For the authors of such books, dedicating a text to an interested royal patron was, as Mosley explains, "a standard way of positioning a text within the patronage-economy of early modern Europe."[426] Scholars dedicated and presented their work to a particular prince in order to gain or maintain support of their work. In accepting the dedicated gift the person of higher rank would, as Davis explains, "add to the lustre of the work…"[427] And as Findlen has explored, gifts within this scientific context reinforced status of both the donor and recipient.[428] As I highlight below, for princes in particular, the patronage of astronomy also held potential benefits in the economic, medical, and religious spheres. And as Brahe makes clear, the support of astronomy also brought fame and glory to its devoted patron.

Practically speaking, patronage of the technical sciences that produced reliable instruments was of great political and economic importance. It was particularly strong among the Protestant courts at Hesse, the Palatine, Württemberg, Braunschweig, and Saxony, where princely involvement in mathematics, observation, and instrument making

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[424] Lisa Jardine, *Worldly Goods: A New History of the Renaissance* (London: W.W. Norton, 1996), 136-44.

[425] Pamela Long O., "Power, Patronage, and the Authorship of Ars: From Mechanica Know-How to Mechanical Knowledge in the Last Scribal Age," *Isis* 88, no. 1 (1997): 20.

[426] Mosley, *Bearing the Heavens*, 128. See also Febvre and Martin, *Coming of the Book*.

[427] Natalie Zemon Davis, "Books as Gifts in Sixteenth-Century France: The Prothero Lecture," *Transactions of the Royal Historical Society Fifth Series* 33 (1983): 73.

[428] Findlen, "The Economy of Scientific Exchange," 19.

was a focus.[429] At the imperial court in Prague, Rudolf's interest in instruments may be noted in the employ of numerous clock and instrument makers, including Jost Bürgi (1552-1632), Erasmus Habermel (ca. 1538-1606), Thomas Ruckert (ca. 1532-1606), and the Augsburg clockmakers Georg Roll (ca. 1546-92), Mattias Rungel (ca. 1563-1630), and Christoph Schissler (died 1609). As Moran explains, the design of machines, both fanciful (such as automatons) and practical (such as clocks, and instruments used in astronomy), became an important preoccupation in Prague, at times involving Rudolf himself. The Emperor had apparently designed a self-orienting chart for travelers, controlled by a concealed compass.[430] Brahe's dedication and giving of the *Mechanica* that featured new mathematical instruments that promised greater accuracy thus operated within a courtly context where support of technology and innovation were promoted.[431]

In the early modern period patronage of the mechanical sciences among princes, geared towards the production of more reliable and more precise instruments that could be used in mining, land surveying, and astronomy, was both economically and politically necessary. As Bruce Moran explains, in central Europe especially,

> "among prince-practitioners […] interest in precision and in the production of machines and measuring instruments has a substantive basis in practical problems arising from efforts toward political consolidation and exploration as well as territorial and commercial expansion […] these concerns emphasized skills pertaining to surveying, cartography, mining, and fortification and attached important political and economic functions to the projects of mathematicians and artisans."[432]

[429] Ibid., 255.

[430] Evans, *Rudolf II and His World*, 187; Bruce T. Moran, "German Prince Practitioners: Aspects in the Development of Courtly Science, Technology, and Procedures in the Renaissance," *Technology and Culture* 22, no. 2 (1981): 255.

[431] For more on courts and the patronage of instruments see, Spicer, "Referencing Invention and Novelty."

[432] Moran, "German Prince Practitioners," 259.

Thus for example, the drawing of maps, using accurate surveying instruments was of key import when it comes to the consolidation of economic, political, and legal rights to land.[433] Instruments used by mining surveyor were also essential, since productive mining was directly tied to the wealth of principalities.[434]

The support of astronomy was also related to national security. The patronage of mathematicians who could produce accurate readings of the heavens, and by extension accurate calendars, would thus be able to determine correct timing for coronations, weddings, and even battles.[435] For example, the supernova of 1572, seen by many at the time as a very powerful omen, was interpreted by Brahe to promise unprecedented political changes that would affect northern Europe. As Brahe hoped, his statements published in his treatise *De nova stella* (1572) caught the attention of King Fredrick who summoned Brahe to court to discuss with him the political implications of the omen, seeking his expertise.[436]

Courtly patronage of astronomy was also essential in relation to the medical sphere. Astrology was key for medieval and early modern medical practice, which depended upon propitious dates and accurate dating, determined by the movement of the stars. As Moran explains,

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[433] Ibid., 260. For the intellectual orientation of Rudolf's court, see Evans, *Rudolf and His World*, 116-61. For a discussion about the involvement of Hapsburg Emperors at Vienna in instrument making, see Erwin Neumann, *Der königliche Uhrmacher Moritz Behaim und seine Tischuhr vom 1559* (Luzern: Sammlung Joseph Fremersdorf, 1967), 8-9.

[434] Moran, "German Prince Practitioners," 261.

[435] Elspeth Whitney, *Medieval Science and Technology* (Westport, Conn.: Greenwood Press, 2004), 33.

[436] Christianson, *On Tycho's Island*, 18.

> "…astrology related to medical practices as a form of astronomical engineering….and casting an accurate nativity became an important part of the medical diagnosis and treatment, affecting the physicians' choice of diet and drugs and determining the timetable for bloodletting, crises, and critical days."[437]

Therefore, instruments that could produce accurate measurements of the heavens directly affected the health of the sovereign, whose treatment (and its efficacy) for a particular illness depended on the accuracy of a timetable or calendar.

Finally, as Moran explains, the patronage of astronomy was tied to power, prestige, and dynastic ambitions, being firmly connected to "the desire for cultural advantage over other courts."[438] Consequently, the fact that a prince could derive social utility and power from the sciences as forms of court technologies made astronomy particularly appealing to princely patrons.[439]

The above economic, medical, and political benefits derived from astronomy would have been equally important for Rudolf. However, Brahe makes the *Mechanica* even more appealing to the Emperor Rudolf, by stroking Rudolf's absolutist ego. Following the medieval notion of sacred kingship, in addressing Rudolf, Brahe insists that

> "…just as your imperial majesty, as the highest preeminence, far surpasses other, lesser men, so too your imperial majesty is not unaware that it is your honor and duty to emulate in immensity the heavenly and the celestial, which far surpasses the terrestrial and the common, and for this reason these sublime studies should be valued and cultivated."[440]

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[437] Moran, "German Prince Practitioners," 258-59.

[438] Ibid.

[439] Moran, "Courts and Academies," 252.

[440] Ibid.

Brahe indicates that it is the Emperor's honor and duty to support astronomy, and by extension Brahe's methods and instruments. This is because as Brahe describes, it is from the "perpetual and constant" state of the heavenly bodies alone that one may "acquire an eternal name and undiminished honor."[441] For Brahe and his contemporaries, the heavens represented the eternal and the unchanging; whereas the earthly or terrestrial represented the fickle, inconsistent, and changing nature of humanity—any glory gleaned from them would not last. As Brahe further describes, the study of the heavens, which leads to greater understanding, allows mankind to celebrate the glory of God:

> "The more that the honor and majesty of the best and greatest God, which shines in celestial things more than in other aspects of this great world theatre, comes to be known more correctly, the more it is increased and esteemed among the inhabitants of the earth."[442]

In other words, as God's representative on Earth, Rudolf II, as Holy Roman Emperor, must cultivate the study of astronomy because this would not only bring great fame and allow his imperial reputation to endure for ever, or "as long as the sun and the heavenly bodies last."[443] Through his own glory, Emperor Rudolf's fame as a great patron of astronomy would be celebrating the majesty and glory of God.[444] And of course, Brahe would also benefit by having an imperial patron who is worthy of Brahe's exceptional skill and knowledge in astronomy.

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[441] Ibid., 10.

[442] Ibid. For more on the subject of the pursuit of knowledge and the relationship to Chirstianity, see Margaret J. Osler, *Reconfiguring the World: Nature, God, and Human Understanding from the Middle Ages to Early Modern Europe* (Baltimore: John Hopkins Press, 2010).

[443] Brahe, *Instruments of the Renewed Astronomy*, 10.

[444] Ibid.

In closing the dedicatory preface, Brahe emphasizes that it is "with the effort devoted to the public good" that he dedicates his astronomical labours to Rudolf II.[445] In doing so it is clear that Brahe hopes that Rudolf will know what to do with the fruits of Brahe's labours. That is to say, Brahe hopes that Rudolf will offer Brahe patronage at the imperial court where the Dane's work would contribute to the greater project of promoting public good—the furthering of knowledge about the world and people's place in it. As described above, Brahe situated his book in a manner that would ensure its appeal to Rudolf's interests and his absolutist ego.

Published gifts of knowledge: contacts, brokers and the *Respublica literaria*

Of particular relevance is the question of how Brahe mobilized the technology and the materiality of the printed image (and word) in order to harness support among members of his sixteenth century Republic of Letters, the virtual community of humanist and noble scholars connected through epistolary correspondence and exchange of ideas, discoveries, opinions, and gifts. As discussed by Brian Ogilvie in relation to the community of naturalists, the Republic of Letters played a very important role in promoting the sense of a collective and common enterprise in the scholarly investigation of naturalists.[446]As Mosley et. al. discuss, "whom one wrote to, who replied, and who wrote on one's behalf were […] important signs of one's standing in the *Res publica litterarum* and in the world at large."[447] Participation in the Republic of Letters, was thus

[445] Brahe, *Instruments of the Renewed Astronomy*, 9.

[446] Ogilvie, *The Science of Describing*, 85.

[447] Mosley et al, "Epistolary culture," 424. Similar to the community of naturalists, which as Ogilvie describes "…the ideal of the Republic of Letters played a powerful role in maintaining the community of

of key import for Brahe's success, both in terms of his own science, and especially for securing patronage. [448]

It should also be noted, however, that participation in the Republic of Letters not only formed a platform for career building and professional discussion.[449] These activities could also impact theories and observational practices employed at different places, and, as Mosley notes, could also function to calibrate the work being carried out by different practitioners.[450] For example, the epistolary exchange between Brahe and the Landgrave Wilhelm of Hess Kassel at Hven and his mathematician, Rothmann, yielded evidence that the comet of 1585 was a celestial phenomenon, rather than a meteorological event.[451] Additionally, based on the observational results the two observatories shared with each other, Brahe was able to identify specific problems with the instrument then being used at Hesse-Kassel.[452]

Communicating within the Republic of Letters was considered to be an obligation

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naturalists. In the absence of formal institutions for exchange of humanist scholars'-ideas, the affective bond of friendship and the sense of a common enterprise served to encourage scholarly investigation as a collective rather than as solitary enterprise," *The Science of Describing*, 85.

[448] Ibid., 38. See also the introduction in Toon D. Houdt et al., *Self Presentation and Social Identification: The Rhetoric and Pragmatic of Letter Writing in Early Modern Times* (Leuven: Leuven University Press, 2002), 1-16. On the history of the term 'Republic of Letters,' see Françoise Waquet, "Qu'est-Ce Que La République Des Lettres? Essai de Sémantique Historique," *Bibliothèque de L'école Des Chartes* 147, no. 1 (1989): 473–502.

[449] Judith Rice Henderson, "Humanist Letter Writing: Private Conversation or Public Forum?," in *Self Presentation and Social Identification: The Rhetoric and Pragmatic of Letter Writing in Early Modern Times*, ed. T.D. et al. Houdt (Leuven: Leuven University Press, 2002), 25.

[450] Mosley, *Bearing the Heavens,* 32.

[451] Ibid, 63.

[452] As Mosley further explains, the exchange of observations also allowed Brahe to determine that the sights on the quadrant used at Hesse-Kassel were off my two minutes of arc, or perhaps that there was an issue with the way it was mounted, Ibid., 63-64.

that had to be fulfilled, while also being a means of establishing and promoting one's own reputation.[453] In order to maintain member status in the Republic of Letters, regular epistolary exchange was key. In this context letters could function as gifts or tokens by which a relationship between aristocratic scholars could be constructed and mediated.[454] Letters also demonstrated literary skill and worked to promote (or demote) one's work, including its defense (if necessary).[455]

For astronomers in particular, as Mosley explains, "[t]he letters exchanged […] played a crucial role in constituting and maintaining an international community of scholars interested in the study of the heavens."[456] Thus Brahe's inclusion of transcribed letters in the *Mechanica* that were originally written by important colleagues praising his ability and skills as an astronomer would have worked to affirm Brahe's participation and membership in the Republic of Letters and would have lent an additional air of authority to his work. It should be noted that the circulation and publication of correspondence in the early modern period was not unusual; letters were not considered intrinsically private at this time.[457] Overall, Brahe's participation in this public, and after bequeathing key individuals with his catalogue of instruments, accompanied by a hand-written stellar

[453] Mosley, *Bearing the Heavens*, 38.

[454] Mosley, *Bearing the Heavens*, 105

[455] Henderson, "Humanist Letter Writing," 18.

[456] Mosley, *Bearing the Heavens*, 32.

[457] Mosley, *Bearing the Heavens*, 102. See ibid. for a discussion of Brahe's publication of his letters with Hesse Kassel, 31-115. See also Henderson, "Humanist Letter Writing," 25. For a general introduction to the topic of early modern scientific correspondence, see Nancy G. Siraisi, *Communities of Learned Experience: Epistolary Medicine in the Renaissance* (Baltimore: Johns Hopkins Press, 2012).

catalogue allowed him to establish an effective network of supporters who were willing to speak on his behalf.[458]

Brahe's network of immediate contacts among the Republic of Letters was not large. However, as Adam Mosley observes it was significant by extension and most of the people with whom Brahe corresponded were themselves in contact with others who were outside Brahe's own network, which "allowed communication with fellow scholars to take place at one or two removes."[459] It should also be noted that the correspondence with the contacts Brahe did maintain was extensive.[460]

As we know, prior to personally giving the *Mechanica* to the Emperor, Brahe disseminated copies of his book amongst his network of contacts. The identity of all the recipients of Brahe's printed gift of the *Mechanica* is unknown. However a small number of the copies of the book that were produced have been identified. According to Christianson, Holger Rosenkrantz (who contributed a poem to the *Mechanica* upon Brahe's request that praised Brahe and his works) was one of the first people to receive a copy of the *Mechanica* as soon as it came off the press in the spring of 1598.[461] Brahe also sent a copy to Otte Steensen Brahe (1578-1651), his twenty-year-old nephew, who was studying under Cort Aslaksson (1564-1624), a former student, client, and friend.[462] George Rollenhagen of Magdeburg (1583-1619), a prominent citizen and scholar of

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[458] Christianson, *On Tycho's Island*, 224

[459] Mosley, *Bearing the Heavens*, 34-35.

[460] Ibid. Mosley examines the exchange of letters between Tycho Brahe and the Langrave Wilhelm of Hesse Kassel.

[461] Ibid. According to Thoren, *Lord of Uraniborg*, 397.

[462] Christianson, *On Tycho's Island*, 252.

astronomy and astrology and a close friend of Brahe's also received a copy.[463] Joseph Scaliger (1540-1609), a pre-eminent Dutch religious leader and scholar was another recipient.[464] As mentioned earlier, David Fabricius (1564-1617), a German astronomer and cartographer and regular correspondent of Brahe who joined him briefly while he was in Wandesburg in 1598 and later in Prague in 1601 also received a copy.[465]

Brahe also enlisted some of his supporters to deliver the books personally. In early summer of 1598 Brahe asked Frans Gansneb Tengnagel van de Camp, a noblemen, scholar, and one of Brahe's assistants, who would receive smooth entry into the courts of rulers, to deliver luxurious copies of the *Mechanica* and star catalogue to Prince Maurice of Orange and to the Archbishop Elector Ernest of Cologne, Rudolf II's cousin—a very influential broker for potential imperial patronage.[466] In addition, as Christianson recounts, German relatives of the Danish Royal family, such as Duke Ulrich of Mecklenburg, Duke Heinrich Julius of Braunschweig-Wolfenbüttel, and John Adolf of Gottorp (the Lutheran prince-bishop of Bremen) also received copies. Mecklenburg and Braunschweig-Wolfenbüttel had in the past visited Tycho Brahe while he still resided on Hven; and all three of them were important princes of the Holy Roman Empire who, as Christianson explains, could influence contacts both at the imperial court and in Denmark. Therefore, by distributing his book of instruments among this network, Brahe

[463] Rollenhagen was the brother in law of Caspar Lehmann, another of Brahe's informants and a gem cutter for Rudolf II. As Thoren discusses, Lehman reported to Brahe seeming gossip that the Emperor was planning to give to Brahe a residence three miles from Prague called Brendeis, a splendid castle, see Christianson, *On Tycho's Island*, 226 and Thoren, *Lord of Uraniborg*, 404.

[464] Ibid., 401; Christianson, *On Tycho's Island*, 224.

[465] According to Christianson, after the death of Brahe, Kepler considered Fabricius to be one of the finest observational astronomer, Christianson, *On Tycho's Island*, 264.

[466] Ibid., 224.

was able to make his work public and gather a new form of support that facilitated his future appointment at the imperial court in Prague.

Brahe's gift of the *Mechanica* impressed his recipients. According to Christianson, its content demonstrated that Brahe's "large-scale activities had achieved a revolution in empirical science surpassing all accomplishments of the past."[467] He adds that "[l]earned readdress [of the period] might wonder whether this achievement heralded the beginning of the Great Instauration of Wisdom, when humans would live on earth like gods, controlling the natural world."[468] Indeed, Brahe's book produced an immediate effect that initially materialized in the form of letters that Brahe presented to Rudolf during their audience as mentioned above: Prince Maurice of Orange and Scaliger promised to seek public support for Brahe (while at the same time the latter expressed regret that any patronage on the part of the Dutch authorities would be slow); Elector and Archbishop Ernest of Cologne wrote to Emperor Rudolf II that the whole German fatherland would be grateful if he granted liberal patronage to Tycho Brahe, describing the Dane as the "unique and most laudable restorer of the sciences."[469] In fact, the Elector was so impressed with Brahe's work, and sympathized greatly with his circumstances, that he presented Frans Tengnagel, the one who delivered the gift, with a gold medallion and a riding horse.[470] The Elector also wrote to Johannes Barvitius urging him to press Brahe's case with the Emperor (he also wrote to Heinrich Rantzau, assuring him that he

[467] Ibid.

[468] Ibid.

[469] Ibid., 224.

[470] Ibid.

would support Brahe himself if things did not work in Prague as planned); and the Duke Ulrich of Mecklenburg wrote to Emperor Rudolf, also urging him to support Tycho Brahe.[471] Finally Duke Otto II of Braunschweig-Luneburg, to whom Brahe had personally presented a copy of the book, wrote to the imperial High Steward, Wolfgang Rumpf von Wullross also pressing Brahe's case.[472]

The Emperor's welcoming reception of Brahe and his promise of patronage *before* being given the gifts suggest that the *Mechanica* had thus already accomplished some of its work prior to reaching the eager hands of Rudolf II. As Christian describes, as Brahe waited for his invitation to the imperial court, his contacts there were also growing.[473] Hagecius, his main broker of patronage at the court, had successfully enlisted the help of two more men, Vice-Chancellor Rudolf von Conraduz and Johannes Barvitius, who comprised the inner circle around the Emperor. According to Christianson, "[w]herever he turned, Emperor Rudolf heard the name of Tycho Brahe: from his physician, his librarian, his gem cutter, his vice-chancellor, the great magnates of Styria and Moravia…"[474] Surely the Emperor would have also heard about the splendor/novelty of Brahe's books that shared his instruments and methods. And when Brahe finally presented the books to Rudolf, Johannes Barvitius, the Emperor's closest adviser, later reported that the Emperor spent many hours late into the night reading and

[471] Ibid., 225.

[472] Ibid., 227. According to Christianson, the Duke Otto was very impressed with Brahe's work and wanted Brahe to cast his nativity.

[473] Ibid.

[474] Ibid., 226.

studying the books that Brahe had given him.[475]

The *Mechanica's* systematic and unique presentation of Tycho Brahe's instruments, his new methods, the display of his observatories found immediate acclaim. And accompanied by his star catalogue of the positions of 1000 stars, obtained using the very instruments and methods outlined in the *Mechanica*, assured the accuracy and importance of his findings to fellow scholars and patrons of astronomy who participated in the Republic of Letters.

In sum, the news of Brahe's new mass-produced book—used to harness contacts and support among this network—trickled to Rudolf II. The recommendations Brahe obtained from his closest advisors functioned to convince the Emperor that patronizing the Danish astronomer would be a worthwhile investment, *before* the Emperor even had the chance to review the Dane's work personally. In other words, the process of making astronomical knowledge public—was mobilized by Brahe to personal ends. Key to this process was the technology of print that promoted the distribution of the printed book amongst his Republic of Letters. In this way, Brahe transformed the technology of print into something much more valuable—imperial patronage of his astronomy.

Conclusion

This Chapter addressed the printed gift of knowledge, in the form of Tycho Brahe's *Astronomiae instauratae mechanica* (1598)—a published book that features his mathematical instruments, along with his ground-breaking methods aimed at renewing the science of astronomy. The *Mechanica* was responding to the contemporary interest in

[475] Ibid., 236.

the instauration of astronomy while at the same time—through its material status as a printed book—generated interest *in* astronomy. That is to say, it generated interest in Brahe's observationally grounded astronomy, which relied on accurate instruments, repeatability of observation, and collaboration.

The particular presentation of Brahe's instruments in the *Mechanica*, as well as the accounts and depictions of his observatories, underscored his revolutionary methods to his network of contacts, emphasizing instrumental precision and accuracy. Through a precarious balance between ornament, symmetry, and varied perspectives, the prints of instruments encourage an engaged viewing that functions to draw attention to the instrument proper. In this way the prints declare the importance of his instruments. By impressing upon the viewer the pictures of Brahe's instruments, the *Mechanica* presented and promoted the trustworthiness of Brahe's astronomy for the purpose of assuring patronage; above all, it did so by appealing to the precision and reliability of his individual instruments and his methods, as established at his observatories on Hven.

In the Chapter I have argued that through the book's select distribution among a Republic of Letters of Brahe's contacts, Brahe harnessed acclaim as a reputable astronomer, which functioned to guarantee patronage at the Imperial court in Prague. In other words, as a result of the *Mechanica*'s appeal and above all its movement from the astronomical observatory into a public composed of Brahe's network of contacts, Brahe converted a printed book of astronomical knowledge into assurance of imperial patronage.

My study also demonstrates that that gifts and counter-gifts do not always proceed in that order. Because of the possibilities of print that allow replication, the counter-gift

can be secured prior to the initial gift-giving. As I demonstrated, Brahe was able to secure patronage at the imperial court prior to presenting the dedicated *Mechanica* to Rudolf. The technology of print also allowed for multiple gifts of the same thing to be given at the same time, which functioned to amplify its overall effect. What this case study demonstrates is that the materiality of the gift is key in understanding the dynamics of gift-giving.

Chapter Six

Conclusion

Focusing upon the material possibilities of artefacts that were circulated as gifts around Emperor Rudolf II in sixteenth- and early seventeenth-century Europe, this dissertation has brought forward the transformative potential of things, materials, and technologies. Furthermore, in addressing the discursive character of gifts —mentioned in letters, inventories, poems, and printed books—the dissertation has addressed the mechanisms and processes that made these artefacts matter to the people who circulated them.

The notion of the gift has garnered much attention in recent art historical studies, in which the performative aspect of the gift is highlighted in relation to displays of power and prestige and in connection to the production and reproduction of social relations. Rather than addressing the outcome of a particular moment of gift-giving, and the issue of reciprocity, the dissertation has focused upon the many interrelated complexities that made gifts meaningful. Addressing the significance of particular gifts within socio-political interactions, the Chapters have argued that it is the gift's specific materiality that engendered connections between courts and people, bridging physical distance and religious difference. Overall I have argued that the exchange of precious gifts between courts and among individuals in the late sixteenth and early seventeenth centuries should be understood relative to the practices and interests that shaped material production.

Relying on the metaphor of alchemy as a process with which to consider the transformative potential of gifts, I have addressed the agency of the gift in relation to its

material properties and potentials for transformations. Alchemy as a practice sought to purify base matter and turn it into more valuable and precious materials. The transformative potentiatiality of alchemy also functions as a metaphor of the potential of the gift. I have suggested that the latent qualities of the gift helped to improve relationships between people separated by distance, religious affiliation, or political standing, and how this parallels the ultimate goals of alchemy: the improvement of nature. Furthermore, considering the volatile period under consideration, the notion that human knowledge could lead to a world void of chaos and conflict caused by warring religious sects was particularly apposite.

The practice of collecting also runs through this dissertation. As discussed in the Chapters, the establishment of the *Kunstkammer* as a repository of knowledge and knowledge-making connects to the interest in the material world in the early modern period. The collecting of *naturalia* and works of art was a shared interest among the nobility of central Europe and was linked to the pursuit of knowledge about the world and our place in it. The giving of *Kunstkammer* artefacts was thus an effective means to establish and maintain connections between courts separated by geographical distance or confessional differences.

This dissertation considers works of art that have traditionally been associated with the category known as the decorative arts, being neither paintings nor traditional sculptures. Literature often relies on the term *Kunstkammer* artefact to address the great array of expertly made works of art that were assembled in princely collections. However, as this dissertation demonstrates, these extraordinary artefacts were much more than mere objects that were assembled in great collections of art that defined the status

and knowledge of the collector. As gifts and as things that could be put on display, not only were they important agents in socio-political affairs—these highly coveted things played a key role in the material pursuits and knowledge-making practices of early modern Europe. In order to grasp why these things were valued so highly—in many cases much higher than the work of the most famous European artists or sculptors—I have underscored the specificity of their materials and the many interconnected processes that brought them into existence.

While Chapter Two addressed how materials worked to animate and activate the more straightforward language of iconography, Chapter Three took up the connection between the aesthetic properties of Bohemian stone and practice—the development of the *commesso* landscape in Prague. Both chapters were concerned with the transformation of natural materials through artificial means to mimic nature in a superior form. I posited that this alteration, or improvement of nature, resembles the alchemical process of conversion in which base metals are transmuted into more precious ones. Therefore, Chapter Two considers an artefact of stone in relation to its artificial embellishment of paint to represent an allegorical image that celebrates an idealized Christian II; while Chapter Three studies an artefact in which stone is processed (through cutting, polishing, and assembling) and committed into an image of a landscape, in which the particular aesthetic qualities of Bohemian jaspers and agates are turned into an artificial landscape. The alchemical transformation in the latter case allows jaspers and agates to coalesce into an idealized picture of a landscape. In both chapters the transformation continually oscillates between natural material and image, produced through artifice. That is to say, our viewing of it is forced to negotiate between appreciating the artistry of the artefact

and the material that gives it form. In this way the painting on jasper-agate and the commesso landscape continue to exist in two states.

Chapters Four and Five addressed the challenges of seeing nature. While Chapter Four was concerned with the issue of making visible something that is invisible—the natural magic contained within gifts of natural artefacts (horns of the unicorn and the rhinoceros and bezoar stones); Chapter Five was focused upon seeing and measuring the heavenly bodies and their movements, something that is unimaginably far away. Both chapters thus addressed making tangible the intangible—natural magic and the movements of heavenly bodies. Thus in Chapter Four the intangible, or natural magic, is represented in the art of painting, while in Chapter Five the intangible movements of the heavens are grasped through repeated measurement, obtained using Brahe's accurate instruments.

The artefacts under consideration in the last two chapters should also be considered in relation to one another. While Chapter Four considers paintings in Rudolf's *Tierbuch*—a hand painted book of natural history—that speak to the magic of the artefacts depicted, Chapter Five considers Brahe's *Mechanica*, the mass produced book of mathematical instruments that point to Brahe's empirical approach to the science of astronomy. The seemingly opposing ways of knowing are thus brought together and demonstrate the multivalent nature of knowledge production at the court of Rudolf II.

While in Chapters Two and Three the metaphor of alchemy illuminates the process of conversion in which natural materials are transformed into a work of art, in Chapter Four it is the property of natural magic of rare natural artefacts that is turned into painted representation that acts as the transformation. Finally in Chapter Five it is the

technology of print that functions as the process that turns base material—paper and print—into something of great value for Brahe and Rudolf: patronage for the former and an improved astronomy for the latter. Therefore, a key concept in my dissertation is how raw matter is transformed into a work of art—through painting, sculpting, cutting, polishing, framing, and printing. The process of that conversion—in which it becomes an aesthetic artefact that matters—is thematized by the persistence of that matter. In other words, the process of conversion is the nature of alchemy, but one in which the mixture retains the identity of its parts. The artefacts that were examined in this dissertation exemplify this process.

Figures

Figure 1 Caspar Ulich, *Hand stone in the form of a table fountain with David and Bathsheba*, Third quarter of sixteenth century, various minerals, silver gilt, enamel. H. 60.5 cm. Kunsthistorisches Museum, Vienna, Kunstkammer, Inv. no. KK 4161.

Figure 2 Hans von Aachen, *Allegory of Christian II oil on jasper-agate*, ca. 1604-1607, oil on jasper-agate, 26.5cm x 21.5cm. Grünes Gewölbe, Staatliche Kunstsammlungen Dresden, Inv. no. II 434.

Image redacted for copyright purposes.

Figure 3 Castrucci workshop, *Electorate of Saxony of commesso di pietre dure*. Castrucci workshop, ca. 1604-1607, jasper-agate, amethyst, mount in gold with Bohemian garnets, 26.5cm x 21.5cm. Grünes Gewölbe, Staatliche Kunstsammlungen Dresden, Inv. no. II 434.

Figure 4 Adriaen de Vries (model), Martin III Hilliger (cast) *Bust of Elector Christian II*, 1603 (model/chasework), bronze, H. 95.6 cm. Skulturensammlung, Staatliche Kunstsammlungen Dresden, Inv. no. H4 ¼. © Skulpturensammlung, Staatliche Kunstsammlungen Dresden; Photograph: Hans-Peter Klut.

Image redacted for copyright purposes. The image may be viewed at
http://www.habsburger.net/en/media/adriaen-de-vries-bust-emperor-rudolf-ii-1603

Figure 5 Adriaen de Vries, *Bust of Emperor Rudolf II*, 1603, bronze, H. 112 cm. Kunsthistorisches Museum, Vienna, Kunstkammer, Inv. no. KK 5506.

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http://en.wikipedia.org/wiki/Leone_Leoni#/media/File:Busto_de_Carlos_V.jpg

Figure 6 Leone Leoni and Pompeo Leoni, *Bust of Charles V*, c. 1553, bronze, H. 112 cm. Kunsthistorisches Museum, Vienna, Kunstkammer, Inv. no. KK 5504

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Figure 7 Adriaen de Vries, Detail of *Bust of Rudolf II*, 1603, bronze, H. 112 cm. Kunsthistorisches Museum, Vienna, Kunstkammer, Inv. no. KK 550

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Figure 8 Giovanni Ambrogio Miseroni, *Venus and Cupid*, ca. 1600-1610, chalcedony 8.3 x 11.4 x 10.1 cm. Kunsthistorisches Museum, Vienna, Kunstkammer, Inv. no. KK 1730.

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https://www.pinterest.com/pin/321163017152605218/

Figure 9 Ottavio Miseroni (stone carving), Paulus van Vianen (gold mounting), *Jasper Ewer*, ca. 1590/1600, mount 1608, H. 35.5 cm, W. 22 cm. Kunsthistorisches Museum, Vienna, Kunstkammer, Inv. no. KK 1866.

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Figure 10 Cosimo Castrucci, *Landscape with a Chapel and a Bridge*, 1596, agates and jaspers, 18.3 x 24.5cm. Kunsthistorisches Museum, Vienna, Kunstkammer, Inv. no. KK 3037.

Image redacted for copyright purposes. The image may be viwed at
http://collections.vam.ac.uk/item/O156383/cabinet-castrucci-workshop/

Figure 11 Castrucci worskshop in Prague, *Collector's Cabinet*, ca. 1610, macassar ebony and ebonized and gilded wood, hardstones, 48.6 x 46.7 x 25.4 cm. The Rosalinde and Arthur Gilbert Colletion on loand to the Victoria and Albert Museum, London. Inv. no. 1996.210 (MM 39).

Image redacted for copyright purposes. The image may be viewed at https://www.google.com/culturalinstitute/asset-viewer/hunters-in-the-snow-winter/WgFmzFNNN74nUg?utm_source=google&utm_medium=kp&hl=en&projectId=art-project

Figure 12 Pieter Breughel the Elder, *Hunters in the Snow*, 1565, oil paint on panel, 117 x 162 cm. Kunsthistorisches Museum, Vienna, Gemäldegalerie, Inv. no. GG 1838.

Figure 13 Pieter Stevens, *Landscape with a Watermill*, 1610, oil on canvas, 132.5 x 175.5 cm. Obrazárna Pražského Hradu, Prague, Inv. no. O 292.

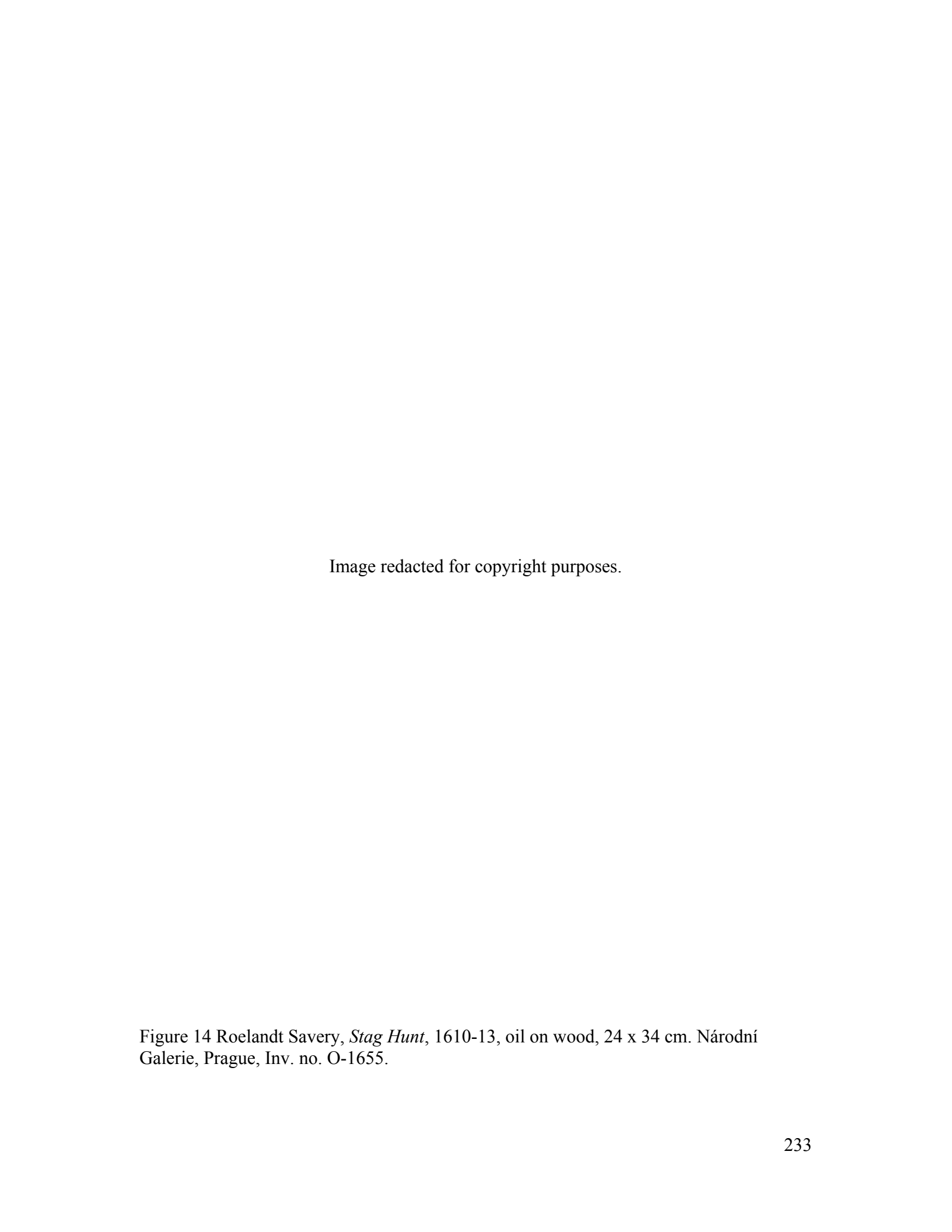

Figure 14 Roelandt Savery, *Stag Hunt*, 1610-13, oil on wood, 24 x 34 cm. Národní Galerie, Prague, Inv. no. O-1655.

Figure 15 Roelandt Savery, *Mountain landscape and view of Prague with the Cathedral of St. Vitus*, *1605*, pen and brown ink on paper, 14.8 x 20 cm. © Kupferstichkabinett. Staatliche Museen zu Berlin, KdZ-Nr. 4461

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Figure 16 Castrucci workshop, Prague, View of Prague Castle, c.1600. View of the Hradčany, Prague, Giovanni Castrucci, Prague, after 1606, Various kinds of agate and jasper on slate, 11.5 x 23.8 cm. Kunsthistorisches Museum, Vienna Kunstkammer, Inv. no. KK 3060.

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Figure 17 Castrucci workshop, Prague, *Landscape with the Sacrifice of Isaac*, before 1603, Agates and jaspers, 43.4 x 57.7 cm. Kunsthistorisches Museum, Vienna, Kunstkammer, Inv. no. KK 3411.

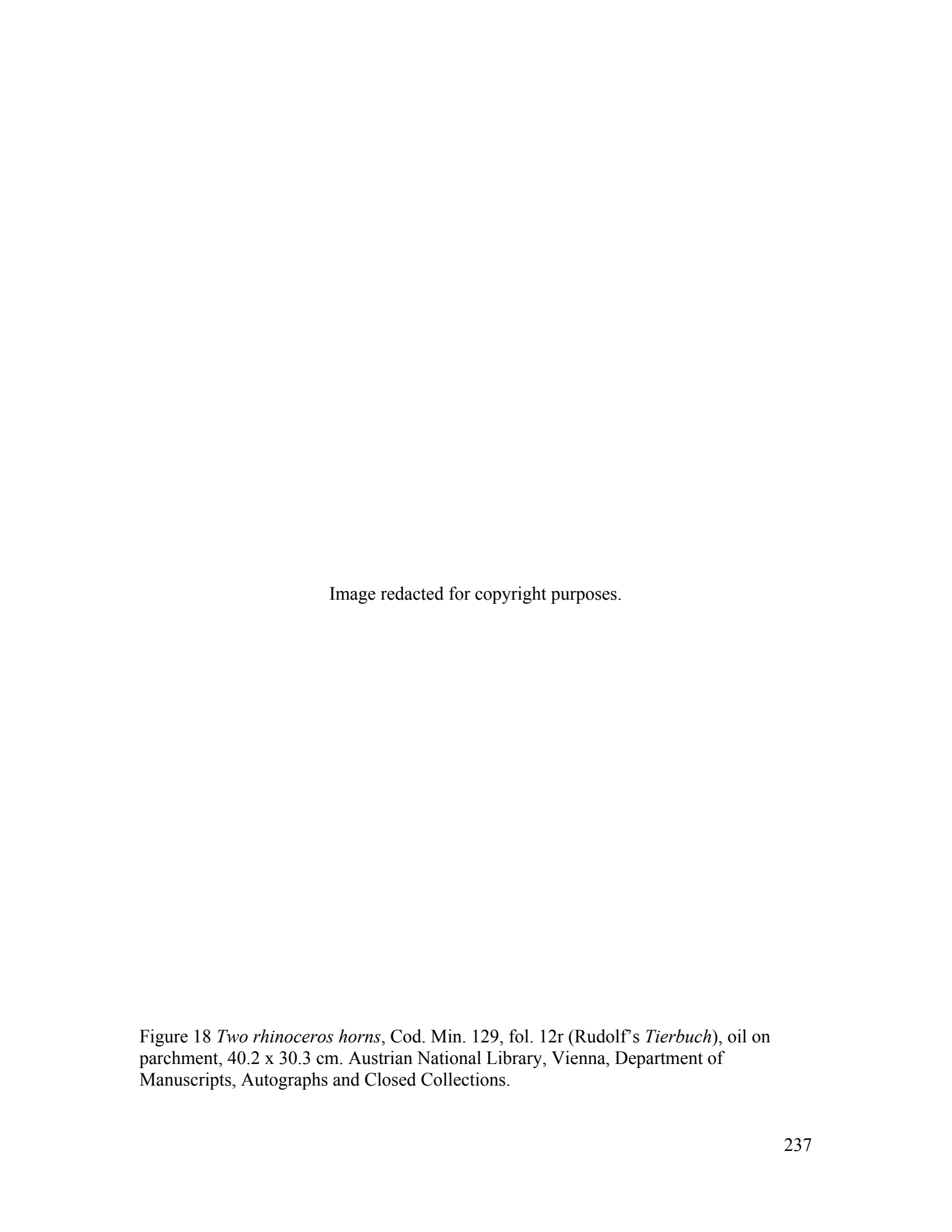

Figure 18 *Two rhinoceros horns*, Cod. Min. 129, fol. 12r (Rudolf's *Tierbuch*), oil on parchment, 40.2 x 30.3 cm. Austrian National Library, Vienna, Department of Manuscripts, Autographs and Closed Collections.

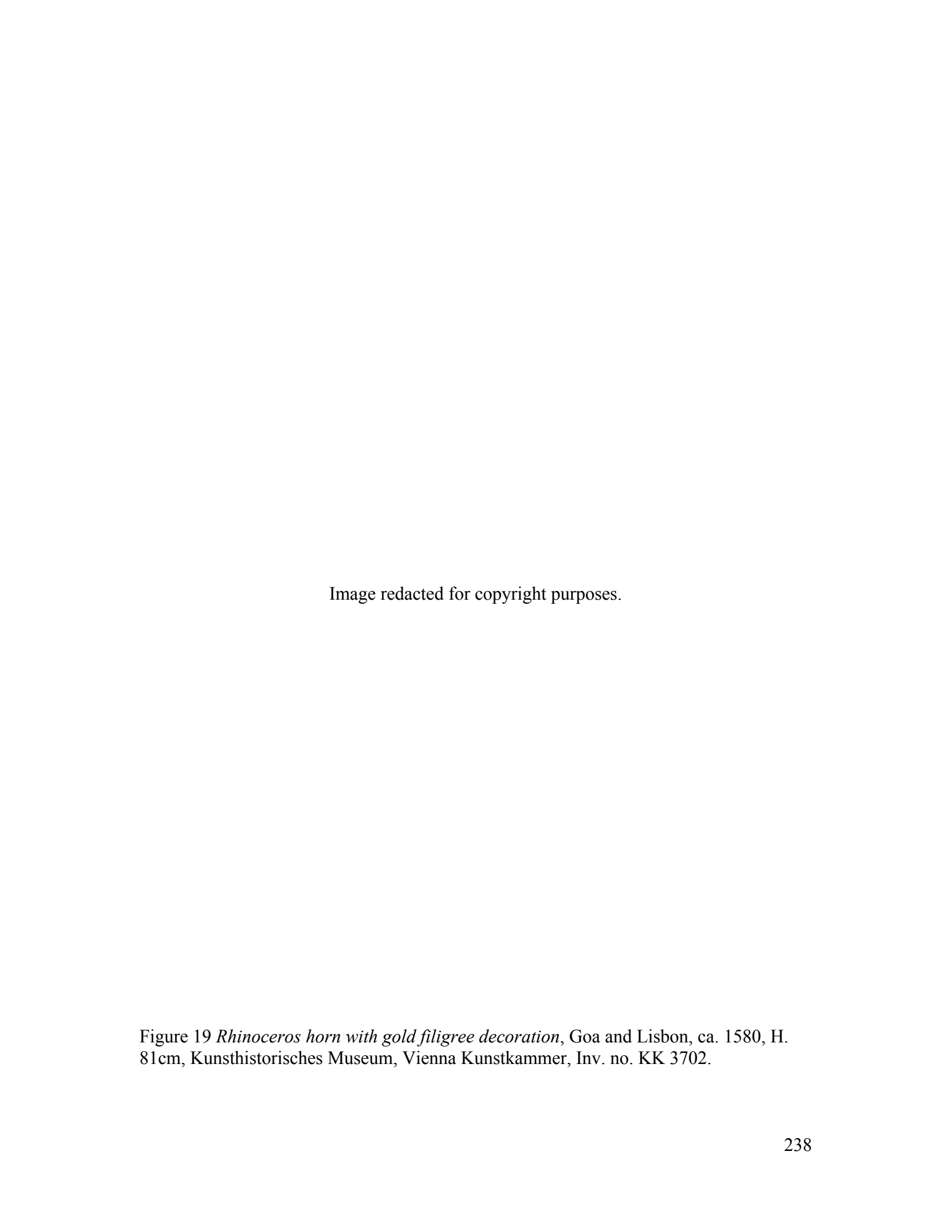

Figure 19 *Rhinoceros horn with gold filigree decoration*, Goa and Lisbon, ca. 1580, H. 81cm, Kunsthistorisches Museum, Vienna Kunstkammer, Inv. no. KK 3702.

Figure 20 *Antelope*, Cod. Min. 129, fol. 21r, (Rudolf's *Tierbuch*), oil on parchment, c. 1600, 40 x 30.2 cm. Austrian National Library, Vienna, Department of Manuscripts, Autographs and Closed Collections.

Figure 21 *Dodo bird*, Cod. Min. 130, fol. 31r, (Rudolf's *Tierbuch*), oil on parchment, c. 1600, 40.1 x 30.3 cm. Austrian National Library, Vienna, Department of Manuscripts, Autographs and Closed Collections.

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Figure 22 *Sea unicorns*, Cod. Min. 129, fol. 13r, (Rudolf's *Tierbuch*), c. 1600, oil on parchment, 40.2 x 30.4 cm. Austrian National Library, Vienna, Department of Manuscripts, Autographs and Closed Collections.

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Figure 23 *Gonsalus and his family*, Cod. Min. 129, fol. 1r, (Rudolf's *Tierbuch*), c. 1600, oil on parchment, 40.2 x 30.5 cm. Austrian National Library, Vienna, Department of Manuscripts, Autographs and Closed Collections.

Figure 24 *Three bezoar stones and a pronghorn*, Cod. Min. 129, fol. 17r, (Rudolf's *Tierbuch*), c. 1600, oil on parchment, 40.2 x 30.2 cm. Austrian National Library, Vienna, Department of Manuscripts, Autographs and Closed Collections.

Figure 25 *Two American pronghorns*, Cod. Min. 129, fol. 16r, (Rudolf's *Tierbuch*), oil on parchment, 40.1 x 30.3. Austrian National Library, Vienna, Department of Manuscripts, Autographs and Closed Collections.

Figure 26 *Unicorn horns*, Cod. Min. 129, fol. 14r, (Rudolf's *Tierbuch*), c. 1600, oil on parchment, 40.2 x 30.4 cm. Austrian National Library, Vienna, Department of Manuscripts, Autographs and Closed Collections.

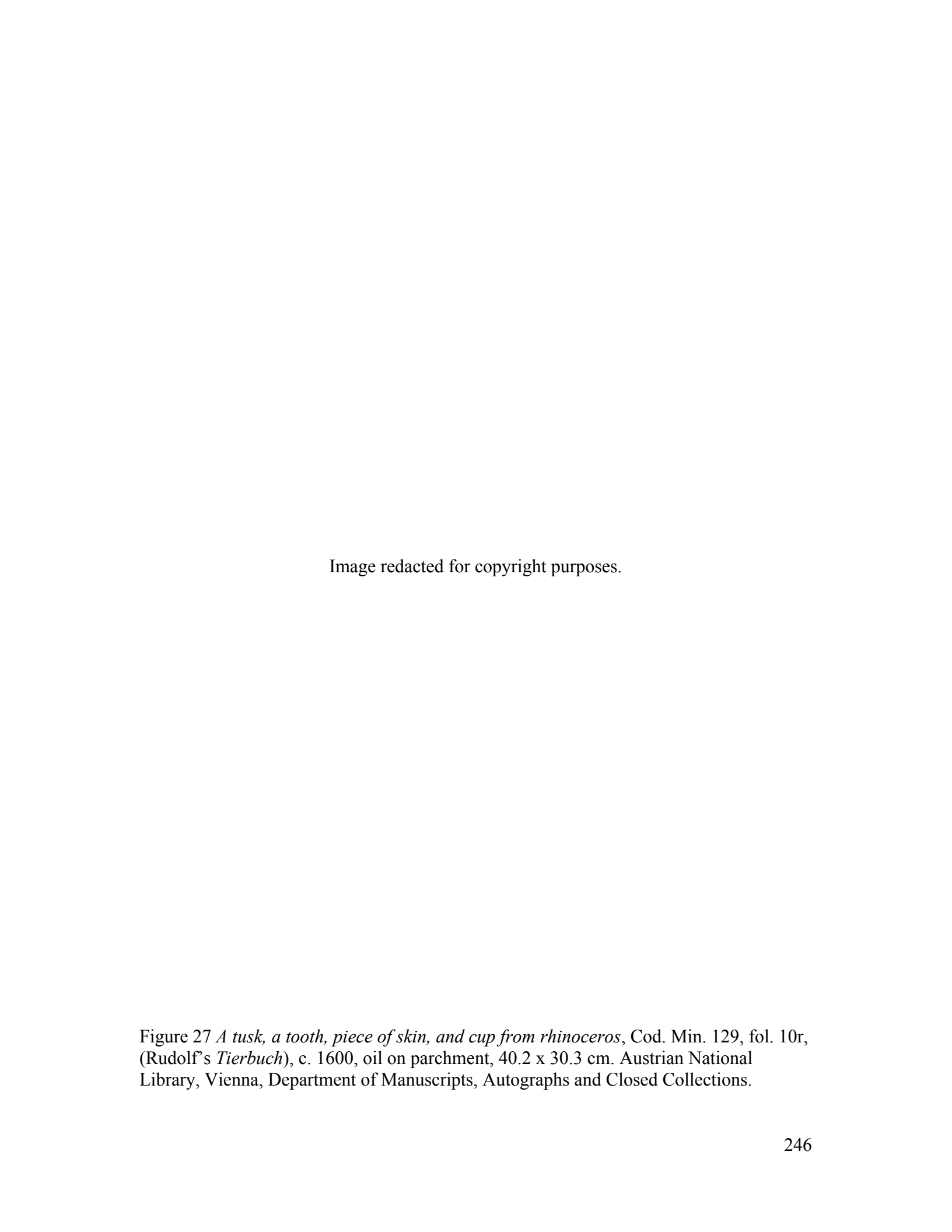

Figure 27 *A tusk, a tooth, piece of skin, and cup from rhinoceros*, Cod. Min. 129, fol. 10r, (Rudolf's *Tierbuch*), c. 1600, oil on parchment, 40.2 x 30.3 cm. Austrian National Library, Vienna, Department of Manuscripts, Autographs and Closed Collections.

Figure 28 *Dragon skeleton*, Cod. Min. 129, fol. 68r, (Rudolf's *Tierbuch*), c. 1600, oil on parchment, 40 x 30 cm. Austrian National Library, Vienna, Department of Manuscripts, Autographs and Closed Collections.

Figure 29 *Decorated Bezoar from Spain*, 3rd quarter of the sixteenth century, gold, emeralds, rubies, H. 25.5 cm. Kunsthistorisches Museum, Vienna Kunstkammer, Inv. no. KK 981.

Figure 30 Jan Vermeyen, *Decorated Bezoar Cup*, ca. 1600, bezoar stone, enameled gold, H. 14.5 cm, W. 9.3 cm, L. 8cm. Kunsthistorisches Museum, Vienna Kunstkammer, Inv. no. KK 3259.

Figure 31 *Equatorial Armillary Instrument*, from Tycho Brahe, *Astronomiae instauratae mechanica*, 1598, woodblock print on paper and gouache. The National Library of Denmark and the University Library of the University of Copenhagen. Picture with permission from The Royal Library Copenhagen.

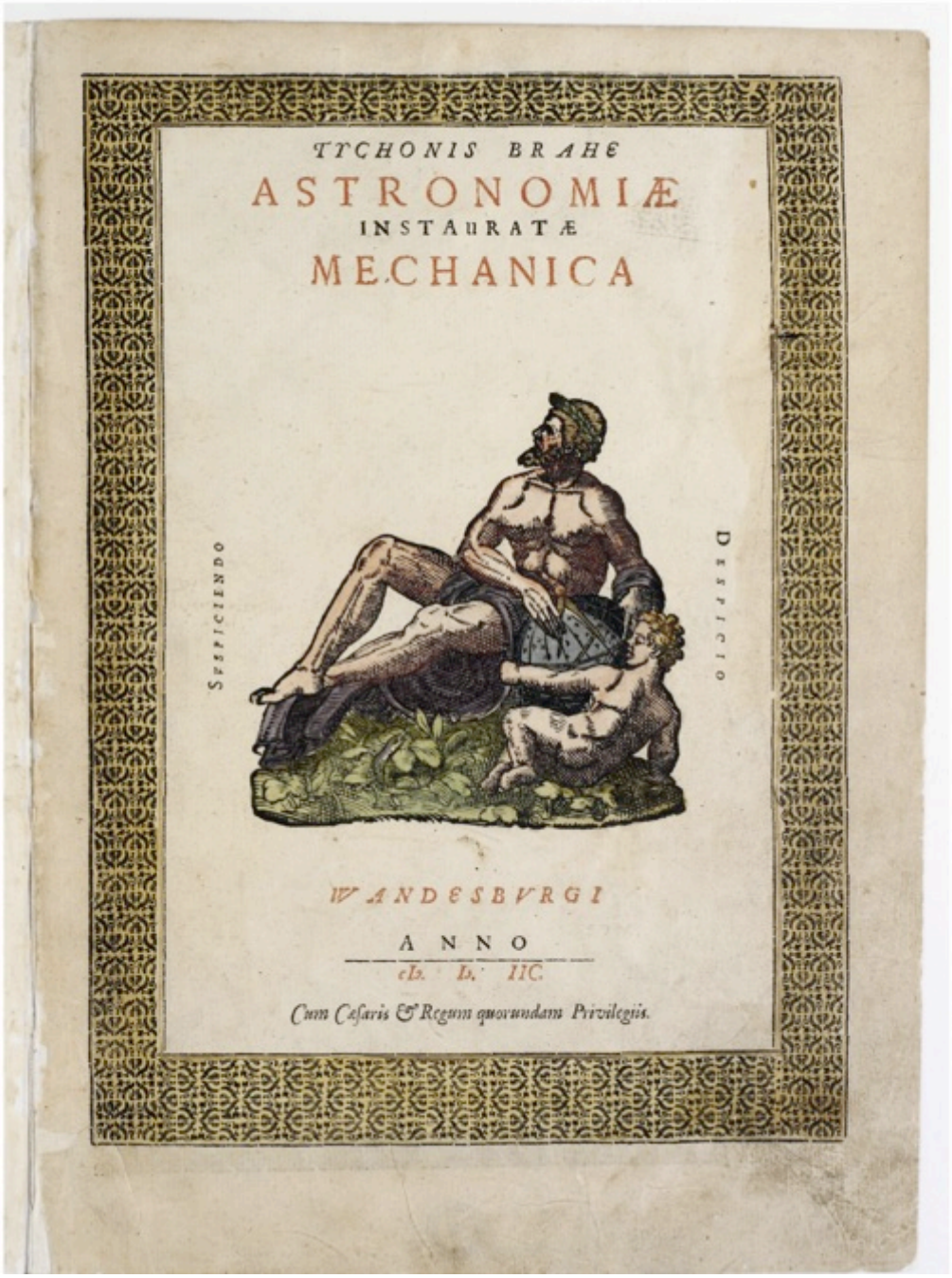

Figure 32 *Suspiciendo despicio*, from Tycho Brahe, *Astronomiae instauratae mechanica*, 1598, woodblock print on paper and gouache. The National Library of Denmark and the University Library of the University of Copenhagen. Picture with permission from The Royal Library Copenhagen.

Figure 33 *Despicio suspiciendo*, from Tycho Brahe, *Astronomiae instauratae mechanica*, 1598, woodblock print on paper and gouache. The National Library of Denmark and the University Library of the University of Copenhagen. Picture with permission from The Royal Library Copenhagen.

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Figure 34 Jacques de Gheyn, *Engraved Portrait of Tycho Brahe*, ca.1586, from Tycho Brahe, *Astronomiae instauratae mechanica*, 1598, copperplate engraving on paper and gouache. Saxon State Library - State and University Library Dresden (SLUB), Inv. No: SB14.

Figure 35 Anonymous, *Painted portrait of Tycho Brahe at age 52*, ca. 1598, from Tycho Brahe, *Astronomiae instauratae mechanica*, 1598, gouache, 285 x 184 mm. The National Library of Denmark and the University Library of the University of Copenhagen. Picture with permission from The Royal Library Copenhagen.

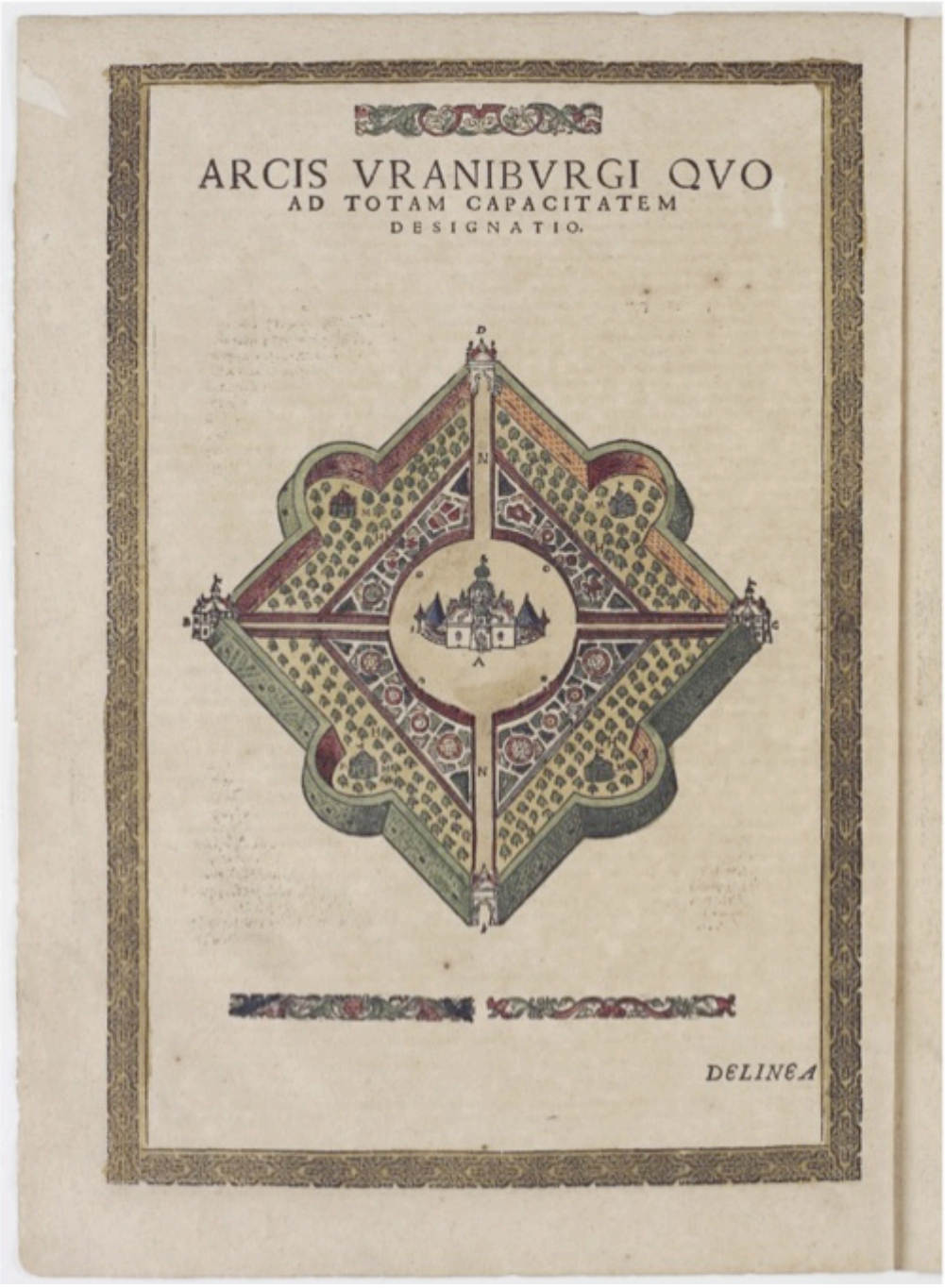

Figure 36 *Explanation of the Design of Uraniborg with All its Premises*, from Tycho Brahe, *Astronomiae instauratae mechanica*, 1598, woodblock print on paper and gouache. The National Library of Denmark and the University Library of the University of Copenhagen. Picture with permission from The Royal Library Copenhagen.

ORTHOGRAPHIA
PRÆCIPVÆ DOMVS ARCIS VRANIBVRGI
IN INSVLA PORTHMI DANICI VENVSIA Vulgo HVENNA, ASTRONOMIÆ INSTAV-
RANDÆ GRATIA CIRCA ANNVM 1580 à TYCHONE BRAHE
EXÆDIFICATÆ.
ICHNOGRAPHIA ET EIVS EXPLICATIO

Figure 37 *Design of the Main Building of Uraniborg on the Island of Hven*, from Tycho Brahe, *Astronomiae instauratae mechanica*, 1598, copper-plate engraving on paper and gouache. The National Library of Denmark and the University Library of the University of Copenhagen. Picture with permission from The Royal Library Copenhagen.

Figure 38 *Design of Stjerneborg, Located Outside Uraniborg*, from Tycho Brahe, *Astronomiae instauratae mechanica*, 1598, woodblock print on paper and gouache. The National Library of Denmark and the University Library of the University of Copenhagen. Picture with permission from The Royal Library Copenhagen.

Figure 39 Willem Janszon Blaeu, *Topography of the Island of Hven*, from Tycho Brahe, *Astronomiae instauratae mechanica*, 1598, woodblock print on paper and gouache. The National Library of Denmark and the University Library of the University of Copenhagen. Picture with permission from The Royal Library Copenhagen.

Figure 40 *Mural, or Tychonian, Quadrant*, from Tycho Brahe, *Astronomiae instauratae mechanica*, 1598, copper-plate engraving on paper and gouache. The National Library of Denmark and the University Library of the University of Copenhagen. Picture with permission from The Royal Library Copenhagen.

Figure 41 *Astronomical Sextant for Measuring Altitudes*, from Tycho Brahe, *Astronomiae instauratae mechanica*, 1598, woodblock print on paper and gouache. The National Library of Denmark and the University Library of the University of Copenhagen. Picture with permission from The Royal Library Copenhagen.

Figure 42 *Parallatic or Ruler Instrument*, from Tycho Brahe, *Astronomiae instauratae mechanica*, 1598, woodblock print on paper and gouache. The National Library of Denmark and the University Library of the University of Copenhagen. Picture with permission from The Royal Library Copenhagen.

Figure 43 *Small Quadrant of Gilt Brass*, from Tycho Brahe, *Astronomiae instauratae mechanica*, 1598, woodblock print on paper and gouache. The National Library of Denmark and the University Library of the University of Copenhagen. Picture with permission from The Royal Library Copenhagen.

Figure 44 *Medium Sized Azimuth Quadrant of Brass*, from Tycho Brahe, *Astronomiae instauratae mechanica*, 1598, woodblock print on paper and gouache. The National Library of Denmark and the University Library of the University of Copenhagen. Picture with permission from The Royal Library Copenhagen.

Figure 45 *Sextant Mounted for the Observation of Altitudes*, from Tycho Brahe, *Astronomiae instauratae mechanica*, 1598, woodblock print on paper and gauche. The National Library of Denmark and the University Library of the University of Copenhagen. Picture with permission from The Royal Library Copenhagen.

Figure 46 *Revolving Azimuth Quadrant,* from Tycho Brahe, *Astronomiae instauratae mechanica*, 1598, woodblock print on paper and gouache. The National Library of Denmark and the University Library of the University of Copenhagen. Picture with permission from The Royal Library Copenhagen.

Figure 47 *Great Steel Quadrant*, from Tycho Brahe, *Astronomiae instauratae mechanica*, 1598, copper-plate engraving on paper and gouache. The National Library of Denmark and the University Library of the University of Copenhagen. Picture with permission from The Royal Library Copenhagen.

Figure 48 *Great Azimuth Semicircle*, from Tycho Brahe, *Astronomiae instauratae mechanica*, 1598, woodblock print on paper and gouache. The National Library of Denmark and the University Library of the University of Copenhagen. Picture with permission from The Royal Library Copenhagen.

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